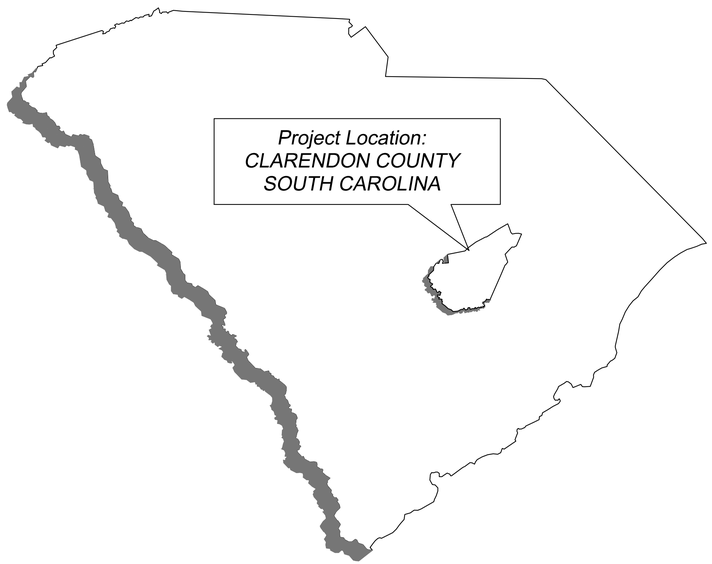


Committed to the future of rural communities.

RURAL WATER SYSTEM IMPROVEMENTS - PHASE 1C

FOR

CLARENDON COUNTY
SOUTH CAROLINA

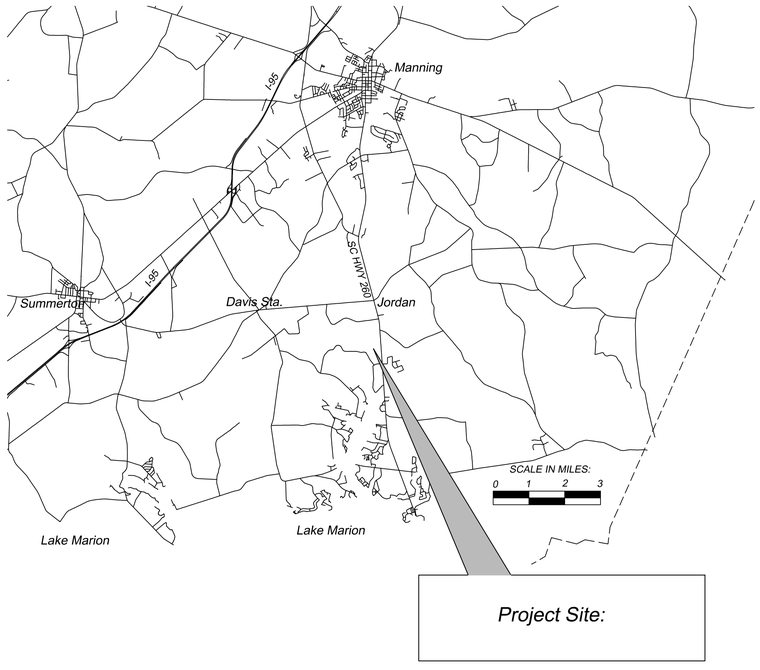
CLARENDON COUNTY WATER AND SEWER DEPT.

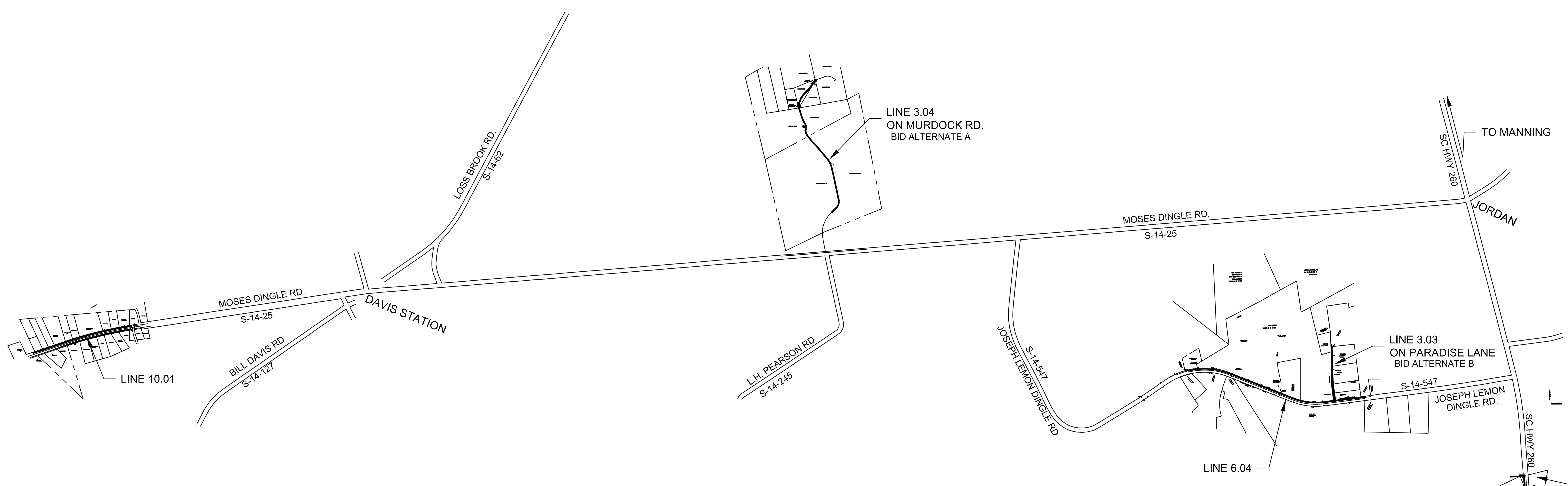
Clarendon County Engineering

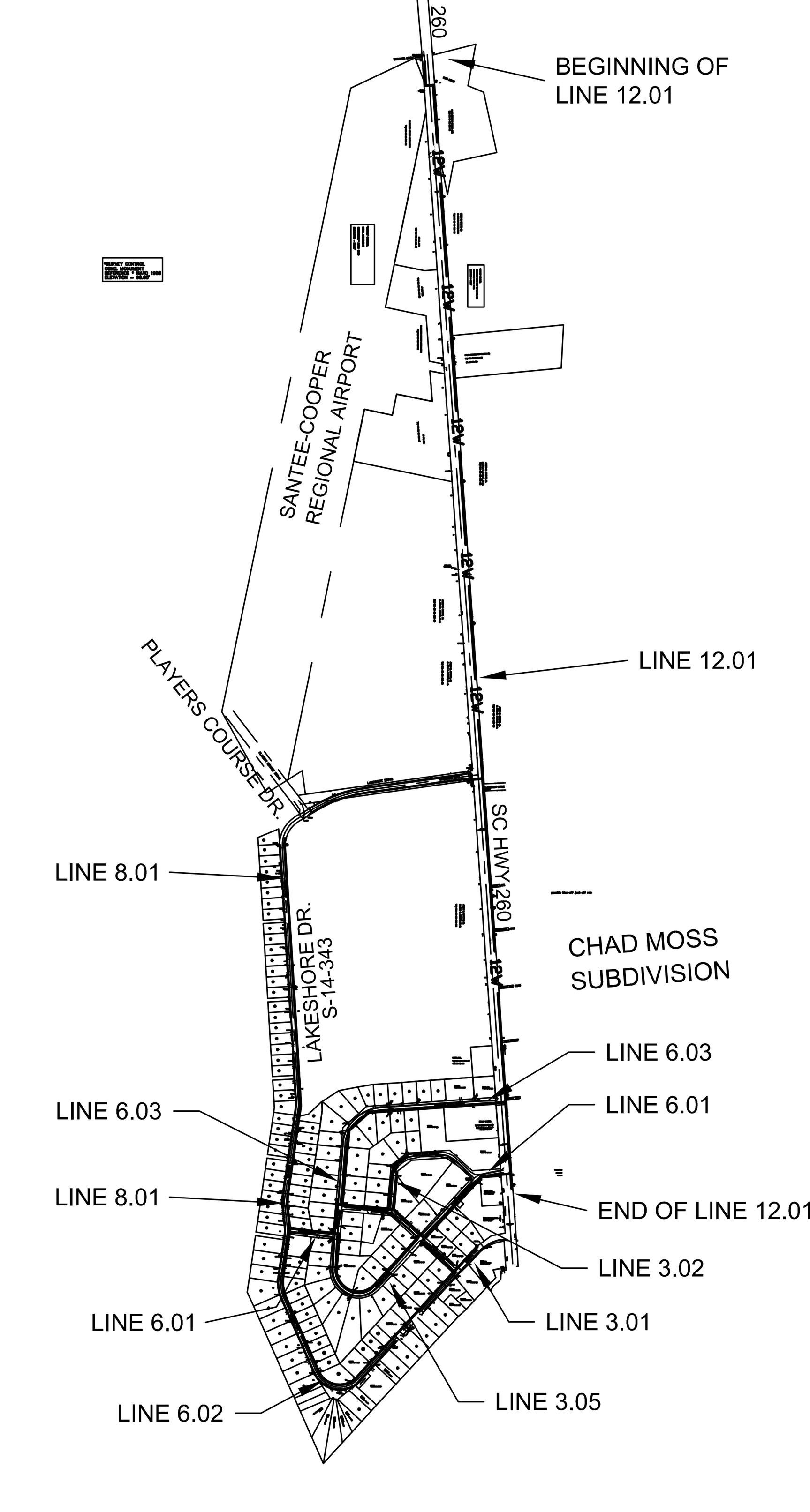
411 SUNSET DR. - MANNING, S.C. 29102
(803) 433-3256 FAX: (803) 435-2208

September 19, 2014

October 28, 2014- Released for Agency Reviews
April 10, 2015 - Released for Bids







GENERAL PLAN NOTES:

1. EXISTING PLAN AND PROFILE DATA SHOWN HEREIN AND USED AS BASIS FOR WATER MAIN LAYOUT WAS PROVIDED BY MATHIS AND MULDROW LAND SURVEYING, INC., MANNING, S.C. IN DIGITAL FILES MM13247A.DWG DATED 1/30/14; MM14068.DWG DATED 5/29/14 AND MM1415450SC.DWG DATED 7/16/14.

2. WETLAND DELINEATION ALONG WATER MAIN ROUTES WAS PERFORMED BY ECOLOGICAL ASSOCIATES, INC., P.O. BOX 357, JOHNS ISLAND, S.C.. ANY CROSSING OF WETLAND AREAS LOCATED AND INDICATED ON THE PLANS IS TO BE BY HORIZONTAL DIRECTIONAL DRILLING OF MAIN BELOW SURFACE WITH SEDIMENT CONTROL PRACTICES TO PREVENT ANY SEDIMENT TRANSPORT FROM ADJACENT WORK AREAS INTO THE WETLANDS.

3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS OF THE PROJECT CONTRACT DOCUMENTS, ALL APPLICABLE PERMITS, ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS IN A PROFESSIONAL WORKMANLIKE MANNER.

4. UNDERGROUND AND ABOVEGROUND UTILITIES SHOWN ON THE DRAWINGS ARE FOR GENERAL INFORMATION ONLY AND ARE TO BE CONSIDERED APPROXIMATE. OTHER UTILITIES MAY EXIST IN THE WORK AREA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT ALL UTILITIES DURING THEIR WORK. CONTRACTOR SHALL CALL PUPS, 811 AT LEAST 72 HOURS PRIOR TO EXCAVATION FOR LOCATION ASSISTANCE.

5. WORK SHALL CONFORM TO ALL EROSION CONTROL PRACTICES SHOWN ON THE WATER MAIN PLAN SHEETS AND ALSO SHOWN ON EROSION CONTROL SHEETS 18-19.

SHEET INDEX

SHEET NUMBER	DESCRIPTION	MAIN NUMBER	FROM STATION	TO STATION	STREET / ROAD
1	WATER MAIN LAYOUT				
2	WATER MAIN PLAN AND PROFILE	12.01	260+51	300+00	SC HWY 260
3	WATER MAIN PLAN AND PROFILE	12.01	300+00	314+00	SC HWY 260
4	WATER MAIN PLAN AND PROFILE	12.01	314+00	328+00	SC HWY 260
5	WATER MAIN PLAN AND PROFILE	12.01	328+00	342+00	SC HWY 260
6	WATER MAIN PLAN AND PROFILE	12.01	342+00	356+00	SC HWY 260
7	WATER MAIN PLAN AND PROFILE	12.01	356+00	END	SC HWY 260
8	WATER MAIN PLAN	6.04	0+50	END	JOSEPH LEMON DINGLE
9	WATER MAIN PLAN	10.01	0+00	END	MOSES DINGLE
10	WATER MAIN PLAN	3.03	0+00	END	PARADISE LANE ALT. B
11	WATER MAIN PLAN	3.04	0+00	END	MURDOCK ALT. A
12	WATER MAIN PLAN	8.01	3+15	END	LAKESHORE DR.
13	WATER MAIN PLAN	6.01, 8.01	0+00, 5+80	3+15, 20+02	LAKESHORE - POCAHONTAS
14	WATER MAIN PLAN	6.01, 6.03, 3.02	0+00, 0+00, 0+00	5+80, END, END	POCAHONTAS, PONTIAC DR.
15	WATER MAIN PLAN	3.05, 6.02	0+00, 0+00	END, END	LAKESHORE, POCAHONTAS
16	WATER MAIN PLAN	6.02, 3.01	9+00, 0+00	17+50, END	LAKESHORE DR.
17	WATER MAIN DETAILS				
18-19	EROSION CONTROL PLANS				

SYMBOL LEGEND

DESCRIPTION	SYMBOL
WATER MAIN (NUMBER IS SIZE)	— 6W —
UNDERGROUND UTILITY	— UG —
POWER POLE	PP OR
MAILBOX	
PEDASTAL	PH OR
FIRE HYDRANT ASSEMBLY	
VALVE	
LAND GRADING:	LG
TOPSOILING:	
TEMPORARY SEEDING:	TS
MULCHING:	M
EROSION CONTROL BLANKET	
PERMANENT SEEDING:	PS
SILT FENCE:	
SEDIMENT TUBE:	
FABRIC INLET PROTECTION:	A
SEDIMENT TUBE INLET PROTECTION:	A

ABBREVIATIONS

DI	DUCTILE IRON
LF	LINEAR FEET
PED	PEDASTAL
PP	POWER POLE
PVC	POLY VINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RJ	RESTRAINED JOINT
R/W	RIGHT-OF-WAY
TEL	TELEPHONE
UG	UNDERGROUND
V&B	VALVE AND VALVE BOX
FOC	FIBER OPTIC CABLE
IPF	IRON PIPE FOUND
MIN	MINIMUM
WM	WATER MAIN

WATER MAIN LAYOUT

DESIGN	DRAWN	APPROVED	REV
BT / RB	BT		

DATE	DWG NO.
SEP 19, 2014	ENG339-01

SCALE	SHEET	OF
AS SHOWN	1	19

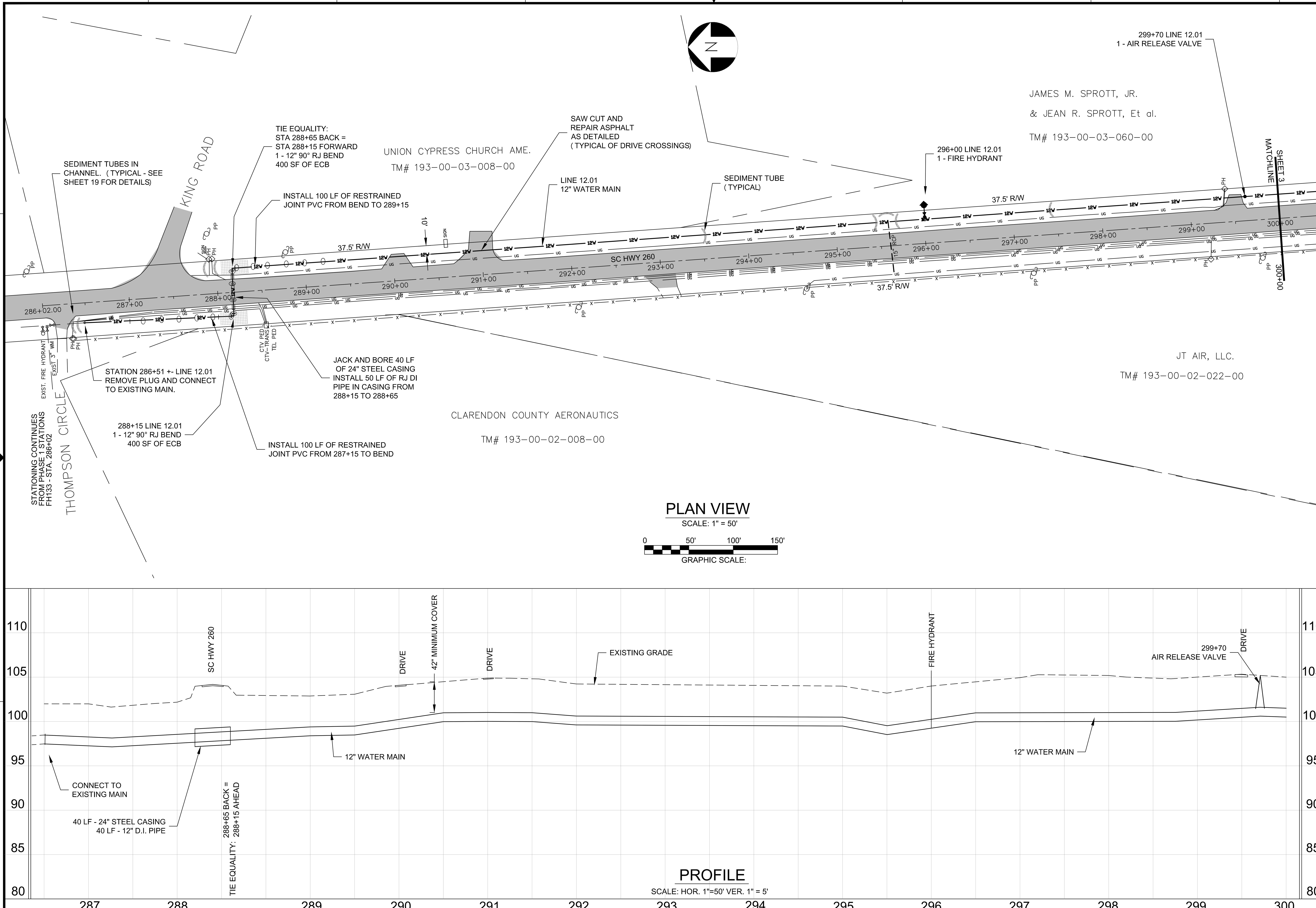
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER NO. 9429 WILLIAM A. TIMMONS

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED
	1	ADDED BID ALTERNATES	4/10/15	

Clarendon County Engineering
411 SUNSET DR. - MANNING, S.C. 29102
(803) 433-3256 FAX: (803) 435-2208

Clarendon County
Water and Sewer Department
PHASE 1-C WATER MAINS



WATER MAIN PLAN & PROFILE
SC HIGHWAY 260
STA: 260+51 - 300+00

DESIGN	DRAWN	APPROVED	REV
BT / RB	BT		
DATE	DWG NO.		
SEP 19, 2014	ENG339-01		
SCALE	SHEET	OF	
AS SHOWN	2	19	

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER NO. 9429 WILLIAM A. TIMMONS 9/19/14

ZONE	REV	DESCRIPTION	DATE	APPROVED

REVISIONS

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Water and Sewer Department
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*SURVEY CONTROL

MONUMENT 562' E OF RD CL STA 301

REFERENCE * NAVD 1988

ELEVATION = 98.80'

S & N PROPERTIES OF MANNING INC.

TM# 193-00-03-059-00

DB. 685 PG. 115

306+00 LINE 12.01
1 - FIRE HYDRANT
1 - 12" V&B

LINE 12.01
12" WATER MAIN

SEDIMENT TUBE
(TYPICAL)

MATCHLINE
300+00
SHEET 2

MATCHLINE
314+00
SHEET 4

SC HWY 260

37.5' R/W

15" RCP

CTV-TRANS

WATER SERVICE TO AIRPORT
VERIFY LOCATION WITH ENGINEER

AIRPORT ENTRANCE

JT AIR, LLC.

TM# 193-00-02-019-00

CLARENDON COUNTY AERONAUTICS

TM# 193-00-02-008-00

JT AIR, LLC.

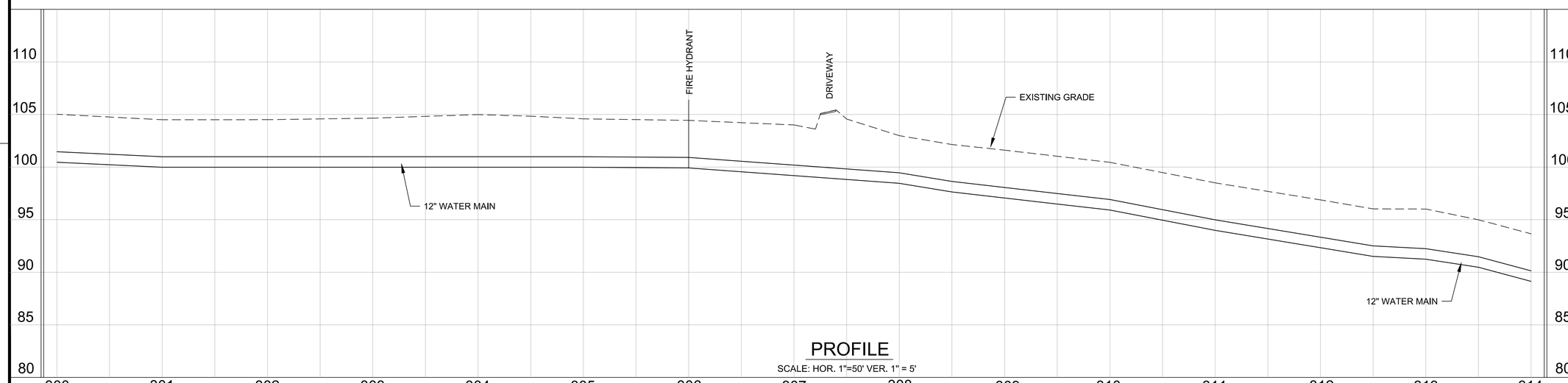
TM# 193-00-02-019-00

PLAN VIEW

SCALE: 1" = 50'

0 50' 100' 150'

GRAPHIC SCALE:



PROFILE

SCALE: HOR. 1"=50' VER. 1" = 5'

WATER MAIN PLAN & PROFILE
SC HIGHWAY 260
STA: 300+00 - 314+00

BT / RB	BT	APPROVED		REV.	
DESIGN	DRAWN	DWG. NO.	ENG339-01	SHEET	3 OF 19
DATE	SEP 19, 2014				
SCALE	AS SHOWN				

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED

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Clarendon County
Water and Sewer Department
PHASE 1-C WATER MAINS

JAMES M. SPROTT, JR.
& JEAN R. SPROTT, Et al.
TM# 194-00-02-010-00

316+00 LINE 12.01
1 - FIRE HYDRANT

LINE 12.01
12" WATER MAIN

200 SF ECB

120 LF - 12" FPVC
HDD UNDER PIPE

200 SF ECB

SEDIMENT TUBE
(TYPICAL)

326+00 LINE 12.01
1 - FIRE HYDRANT

MATCHLINE
314+00
SHEET 3

MATCHLINE
328+00
SHEET 5

SC HWY 260

37.5' R/W

15" RCP

WET LANDS
176.7 SQ. FT.

CTV-TRANS

JAMES M. SPROTT, JR.
& JEAN R. SPROTT, Et al.

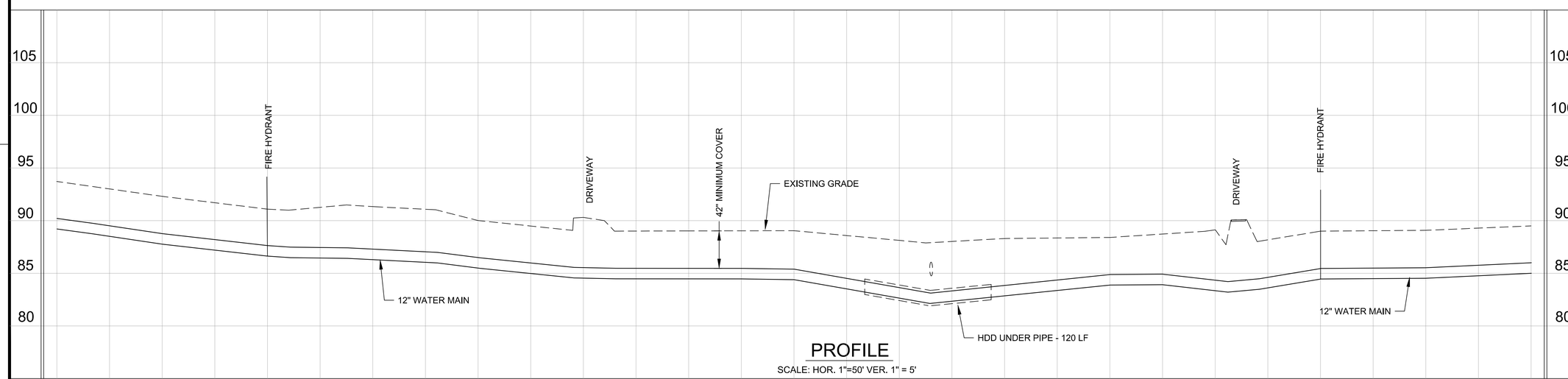
TM# 194-00-02-010-00

PLAN VIEW

SCALE: 1" = 50'

0 50' 100' 150'

GRAPHIC SCALE:



PROFILE

SCALE: HOR. 1"=50' VER. 1" = 5'

WATER MAIN PLAN & PROFILE
SC HIGHWAY 260
STA: 314+00 - 328+00

BT / RB	DESIGN
BT	DRAWN
	APPROVED
SEP 19, 2014	DATE
ENG339-01	DWG. NO.
AS SHOWN	SCALE
4	SHEET
19	OF
	REV.

REVISIONS

ZONE	REV.	DESCRIPTION	DATE	APPROVED

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WATER MAIN PLAN & PROFILE
SC HIGHWAY 260
STA: 328+00 - 342+00

BT / RB	BT	ENG339-01	5	OF	19
DESIGN	DRAWN	DWG NO.	SHEET		REV
SEP 19, 2014		APPROVED			
DATE					
AS SHOWN					
SCALE					

JAMES M. SPROTT, JR.
& JEAN R. SPROTT, Et al.
TM# 194-00-02-010-00

LINE 12.01
12" WATER MAIN

SEDIMENT TUBE
(TYPICAL)

MATCHLINE
SHEET 4

328+00

329+00

330+00

331+00

332+00

333+00

334+00

335+00

336+00

337+00

338+00

339+00

340+00

341+00

342+00

MATCHLINE
SHEET 6

37.5' R/W

10'

SC HWY 260

336+70 BEGIN RESTRAINED JOINTS

336+90 LINE 12.01 = 0+00 ON LAKESHORE
1 - 12X12X12 TEE
2 - 12" V&B
400 SF - ECB

UNDER LAKEWOOD DRIVE
JACK AND BORE
48 LF 24" STEEL CASING
60 LF 12" D.I. R.J. PIPE

25' COUNTY R/W

LAKEWOOD DRIVE

337+80 LINE 12.01 = 0+00 ON LAKEWOOD DR.
1 - 12X12X8 TEE
2 - 8" 45° BENDS
1 - 8" V&B
40 LF RESTRAINED JOINT 8" PVC PIPING
1 - 8" RJ PLUG
FOR FUTURE CONNECTION
VERIFY LOCATION IN FIELD WITH ENGINEER

338+00 END RESTRAINED JOINTS

UNDER SC HWY 260
JACK AND BORE
50 LF 24" STEEL CASING
60 LF 12" D.I. R.J. PIPE
60 LF 12" RESTRAINED JOINT PVC PIPE
1 -12" V&B
1- 12" RJ PLUG
FOR FUTURE CONNECTION

400 SF - ECB

LINE 12.01
1 - FIRE HYDRANT

7.5'

LAKESHORE - ROAD

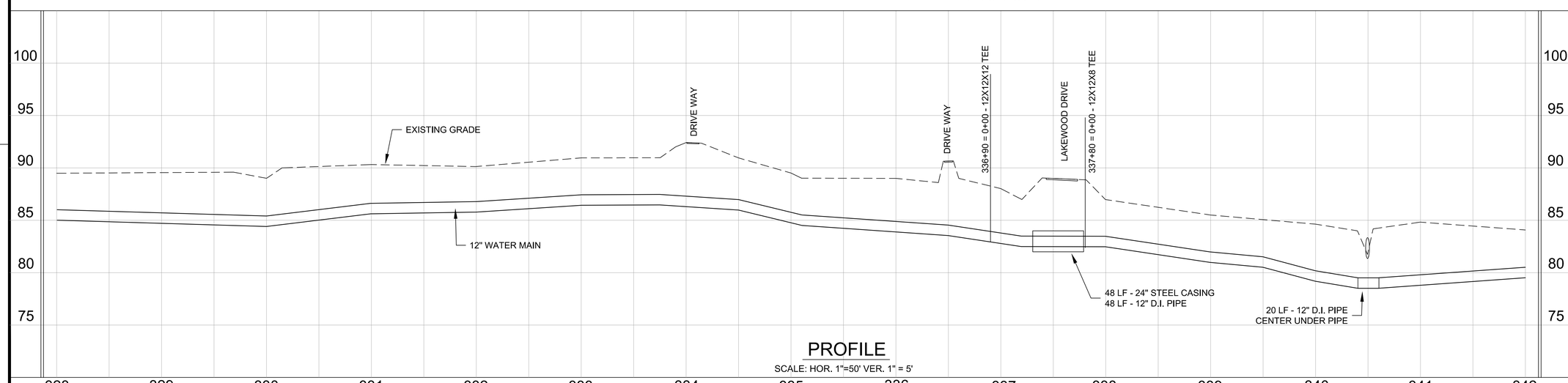
33' R/W

JAMES M. SPROTT, JR.
& JEAN R. SPROTT, Et al.

TM# 194-00-02-010-00

PLAN VIEW
SCALE: 1" = 50'

0 50' 100' 150'
GRAPHIC SCALE:



PROFILE
SCALE: HOR. 1"=50' VER. 1" = 5'

REVISIONS			
ZONE	REV	DESCRIPTION	DATE
			APPROVED

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Clarendon County
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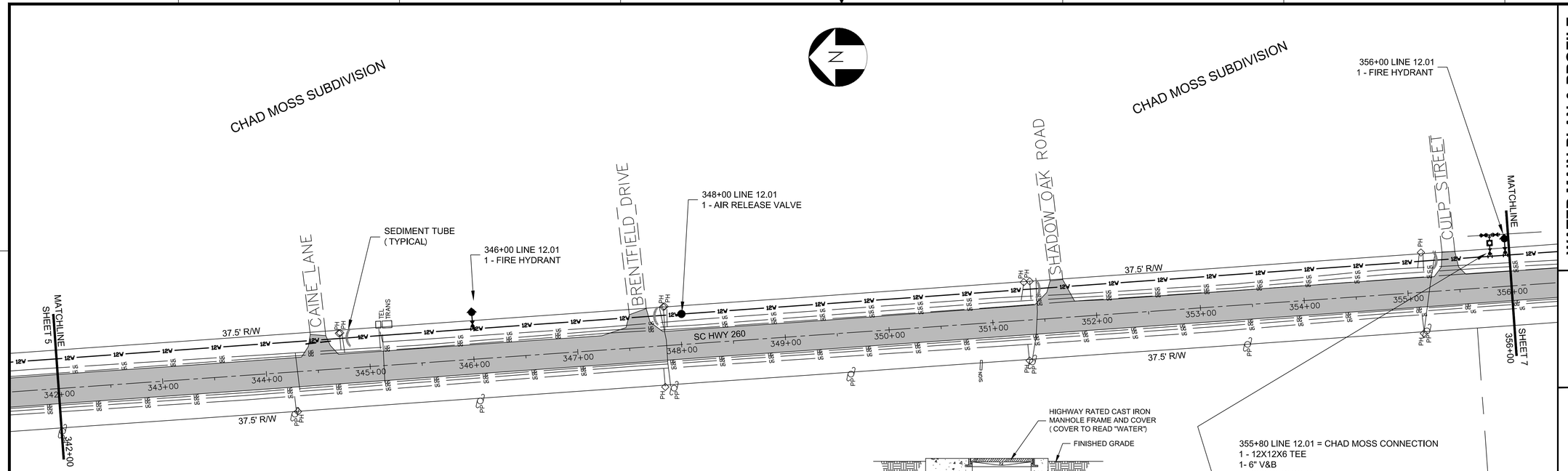
PHASE 1-C WATER MAINS

WATER MAIN PLAN & PROFILE
SC HIGHWAY 260
STA: 342+00 - 356+00

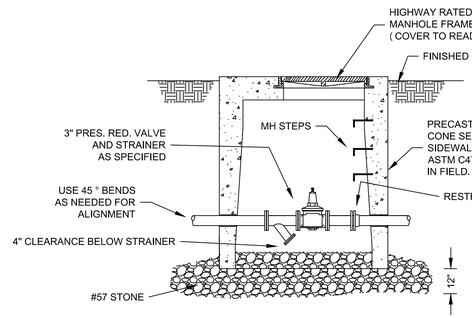
BT / RB	BT	APPROVED		REV.
DESIGN	DRAWN	DWG. NO.	ENG339-01	19
DATE	SEP 19, 2014	SHEET	6	OF
SCALE	AS SHOWN			



JAMES M. SPROTT, JR.
& JEAN R. SPROTT, Et al.
TM# 194-00-02-010-00

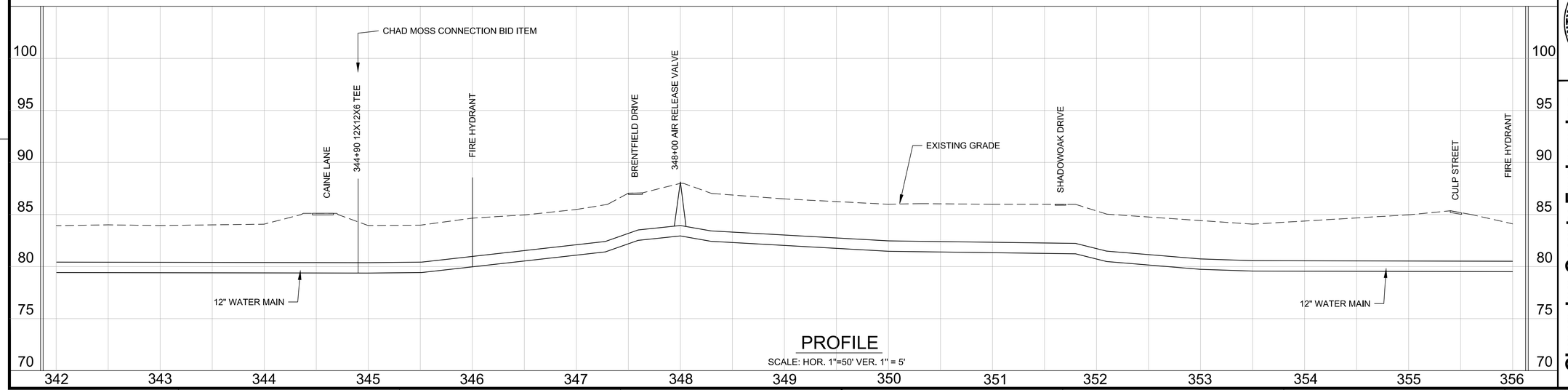
PLAN VIEW
SCALE: 1" = 50'

0 50' 100' 150'
GRAPHIC SCALE:



PRESSURE REDUCING VALVE DETAIL
NOT TO SCALE

355+80 LINE 12.01 = CHAD MOSS CONNECTION
1 - 12X12X6 TEE
1- 6" V&B
1 - 6X3 REDUCER
1 - 3" PRESSURE REDUCING VALVE AND MH
1 - 3X4 INCREASER
1 - 4X4X4 TEE
2 - 4" V&B
2 - 4" COUPLINGS
30 LF 4" D.I. PIPE
10 LF 6" D.I. PIPE
ALL RESTRAINED JOINT PIPING
VERIFY LOCATION IN FIELD WITH ENGINEER.
CHAD MOSS BID ITEM INCLUDES ALL PIPING LISTED ABOVE COMPLETE.



PROFILE
SCALE: HOR. 1"=50' VER. 1" = 5'

REVISIONS			
ZONE	REV	DESCRIPTION	DATE
	1	ADDED P.R. VALVE DETAIL	4/10/15

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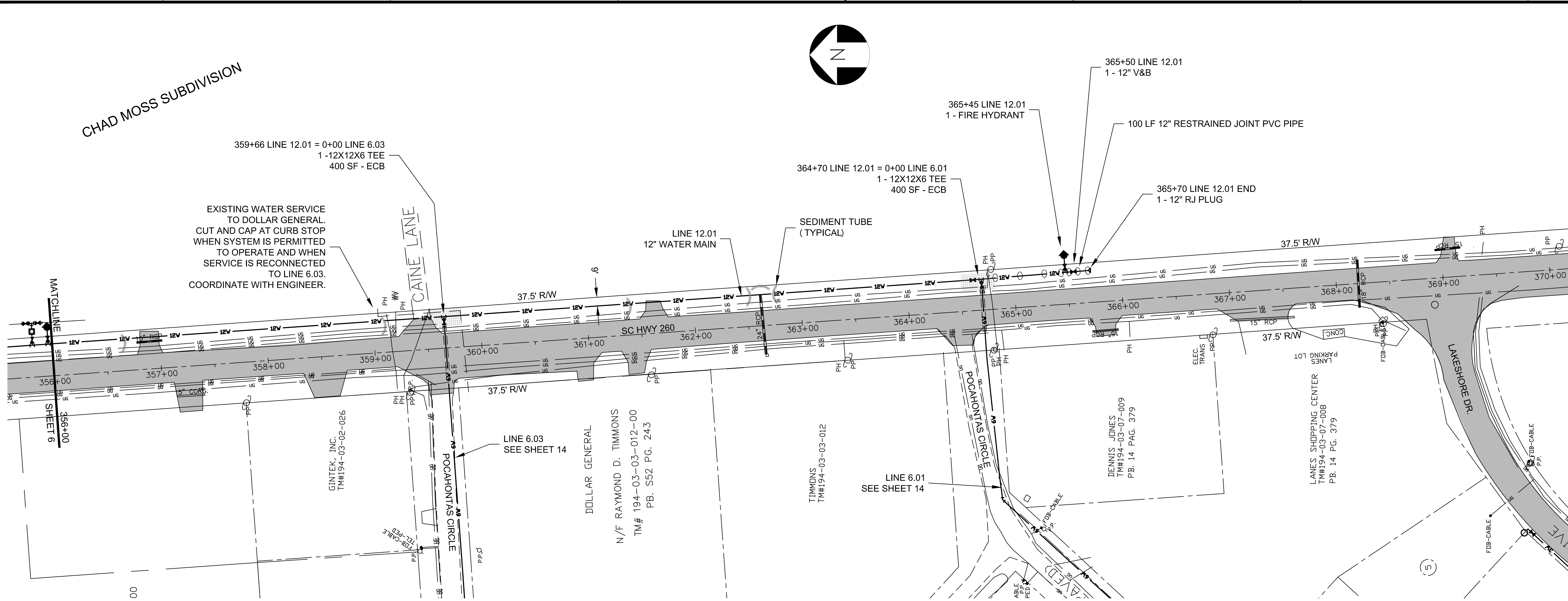
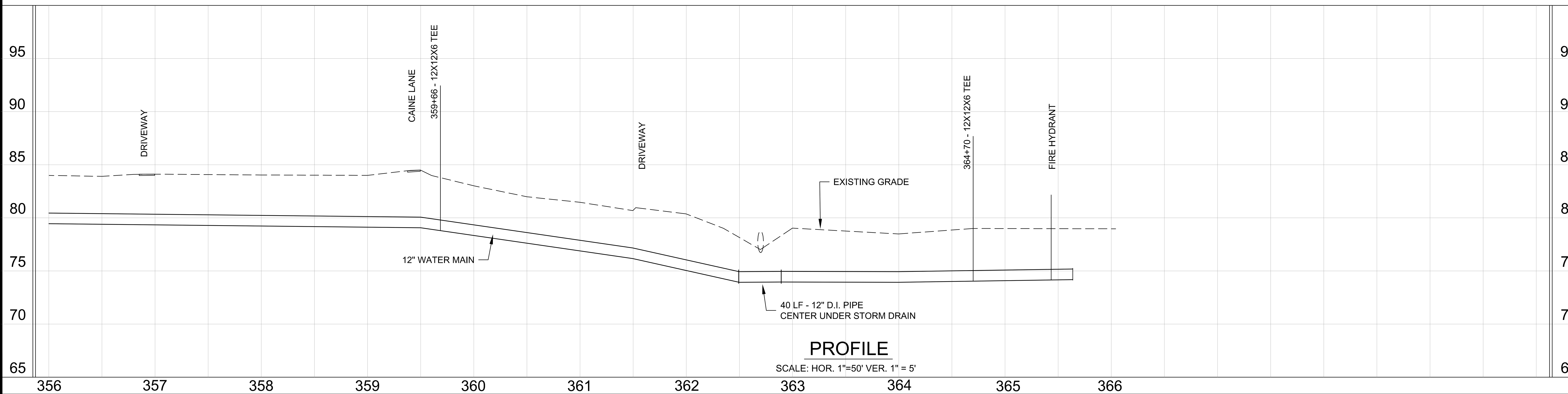

CHAD MOSS SUBDIVISION
MATCHLINE
SHEET 6
356+00
359+66 LINE 12.01 = 0+00 LINE 6.03
1 -12X12X6 TEE
400 SF - ECB
EXISTING WATER SERVICE
TO DOLLAR GENERAL.
CUT AND CAP AT CURB STOP
WHEN SYSTEM IS PERMITTED
TO OPERATE AND WHEN
SERVICE IS RECONNECTED
TO LINE 6.03.
COORDINATE WITH ENGINEER.
CAINE LANE
LINE 12.01
12" WATER MAIN
SEDIMENT TUBE
(TYPICAL)
364+70 LINE 12.01 = 0+00 LINE 6.01
1 - 12X12X6 TEE
400 SF - ECB
365+45 LINE 12.01
1 - FIRE HYDRANT
365+50 LINE 12.01
1 - 12" V&B
100 LF 12" RESTRAINED JOINT PVC PIPE
365+70 LINE 12.01 END
1 - 12" RJ PLUG
37.5' R/W
SC HWY 260
356+00
357+00
358+00
359+00
360+00
361+00
362+00
363+00
364+00
365+00
366+00
367+00
368+00
369+00
370+00
15" RCP
5" CORG.
24" RCP
18" RCP
LINE 6.03
SEE SHEET 14
POCAHONTAS CIRCLE
GINTEK, INC.
TM#194-03-02-026
DOLLAR GENERAL
N/F RAYMOND D. TIMMONS
TM# 194-03-03-012-00
PB. S52 PG. 243
TIMMONS
TM#194-03-03-012
LINE 6.01
SEE SHEET 14
DENNIS JONES
TM#194-03-07-009
PB. 14 PAG. 379
ELEC. TRANS
LANES PARKING LOT
CONC.
LANES SHOPPING CENTER
TM#194-03-07-008
PB. 14 PG. 379
LAKESHORE DR.
FOB-CABLE
P.P.
TEL-PED

PLAN VIEW

SCALE: 1" = 50'

0 50' 100' 150'

GRAPHIC SCALE:



PROFILE

SCALE: HOR. 1"=50' VER. 1" = 5'

WATER MAIN PLAN & PROFILE
SC HIGHWAY 260
STA: 356+00 - 366+00

DESIGN	DRAWN	APPROVED	REV
BT / RB	BT		

DATE	DWG NO.
SEP 19, 2014	ENG339-01

SCALE	SHEET	OF
AS SHOWN	7	19

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED

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Clarendon County
Water and Sewer Department
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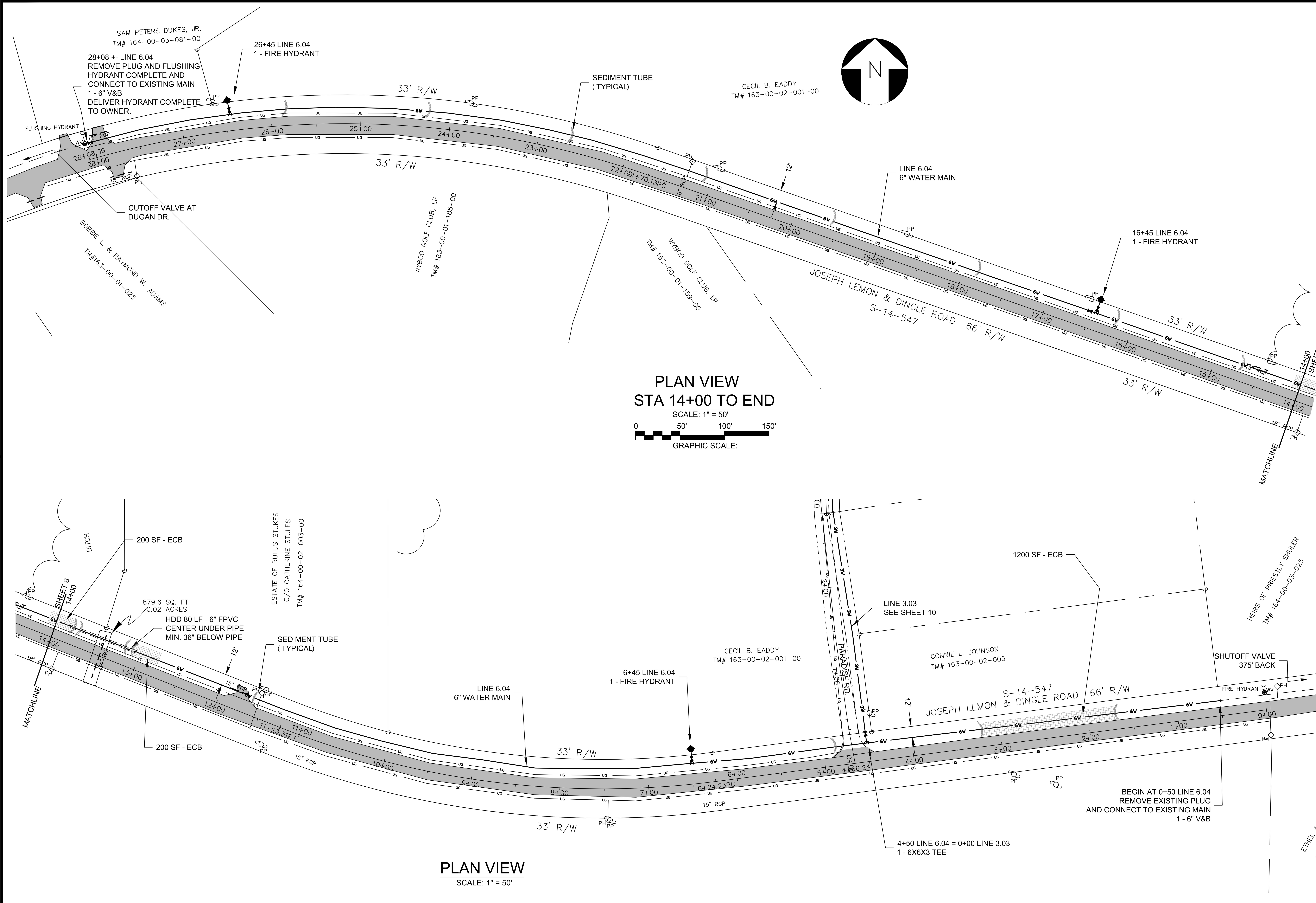

WATER MAIN PLAN
LINE 6.04
JOSEPH LEMON DINGLE RD

DESIGN	DRAWN	APPROVED	
BT / RB	BT		
DATE: SEP 19, 2014		DWG NO.: ENG339-01	REV
SCALE: AS SHOWN		SHEET: 8	OF: 19

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED

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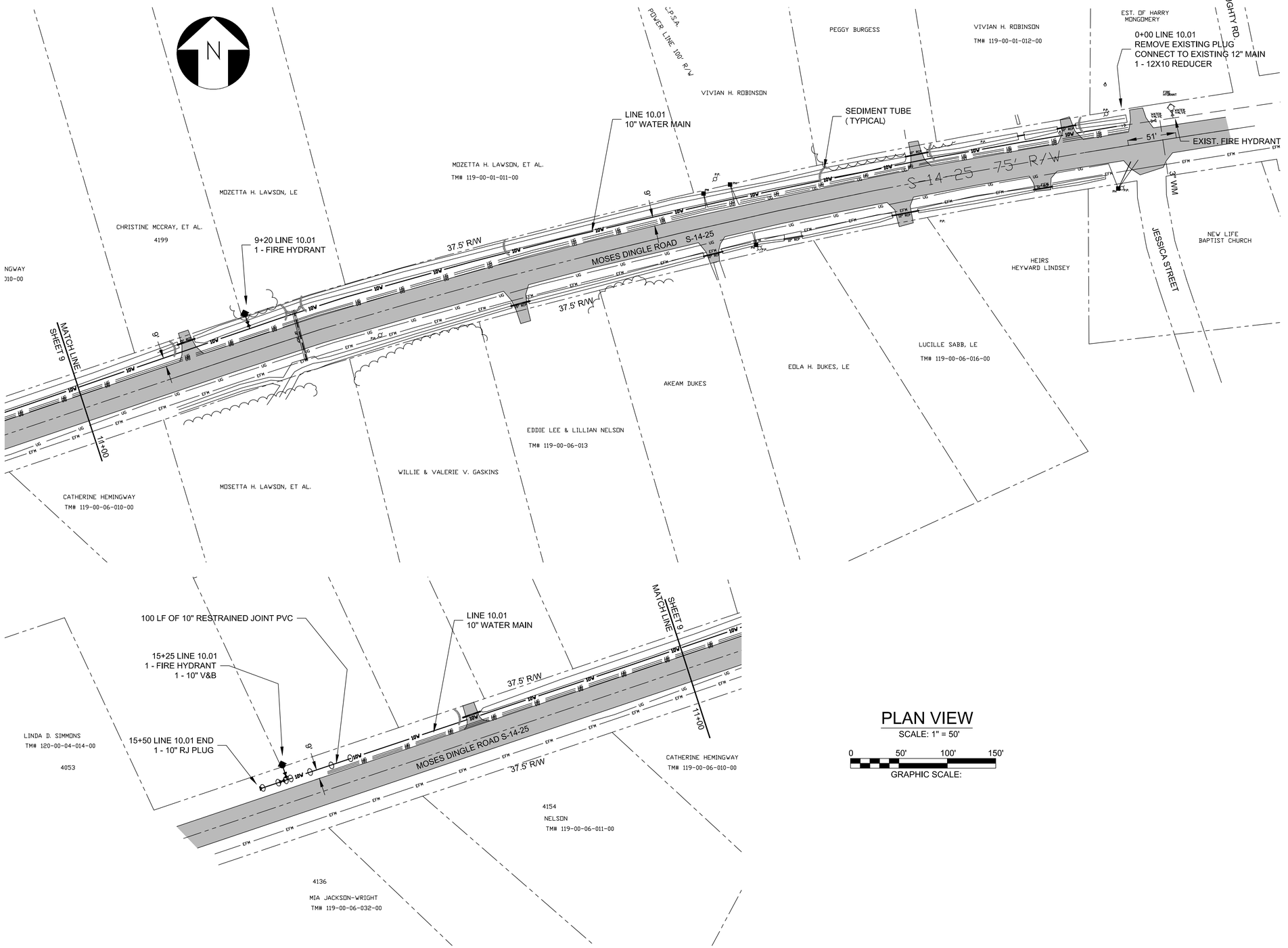
Water and Sewer Department
PHASE 1-C WATER MAINS



PLAN VIEW

SCALE: 1" = 50'

0 50' 100' 150'

GRAPHIC SCALE:

WATER MAIN PLAN
LINE 10.01
MOSES DINGLE RD.

BT / RB	BT	APPROVED	ENG339-01	SHEET	9
DESIGN	DRAWN	DWG NO.		OF	19
DATE	SEP 19, 2014			REV.	
SCALE	AS SHOWN				

REVISIONS

ZONE	REV.	DESCRIPTION	DATE	APPROVED

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Clarendon County
Water and Sewer Department
PHASE 1-C WATER MAINS

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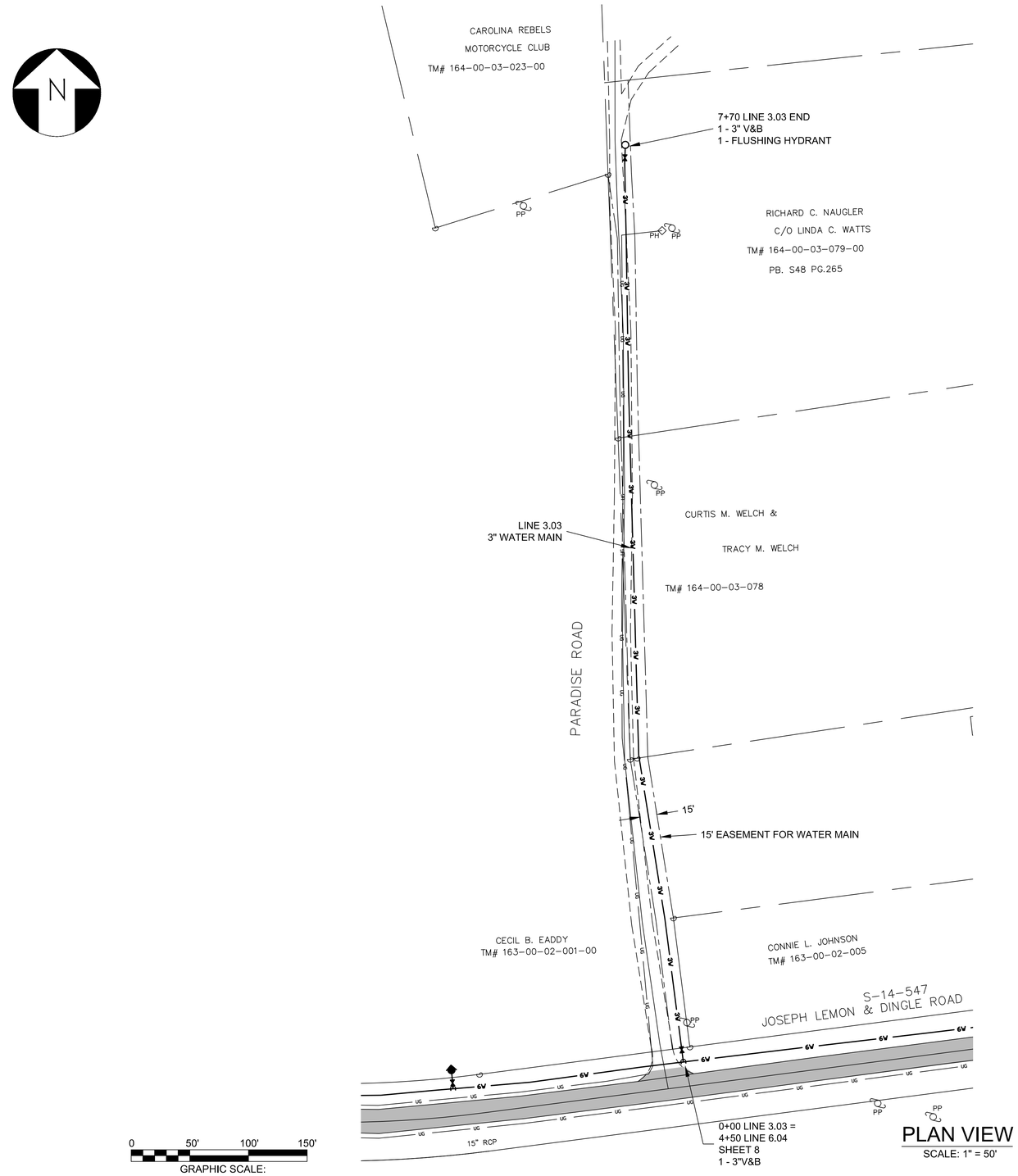

PLAN VIEW
SCALE: 1" = 50'

BID ALTERNATE ITEM B

WATER MAIN PLAN
LINE 3.03
PARADISE ROAD

BT / RB	BT		ENG339-01	19
DESIGN	DRAWN	APPROVED	DWG NO.	SHEET 10 OF
DATE: SEP 19, 2014				REV.
SCALE: AS SHOWN				

REGISTERED LANDSCAPE ARCHITECT
NO. 949
WILLIAM A. THOMAS
NORTH CAROLINA
9/19/14

REVISIONS			
ZONE	REV	DESCRIPTION	DATE
	1	ADDED BID ALTERNATES	4/10/15

APPROVED

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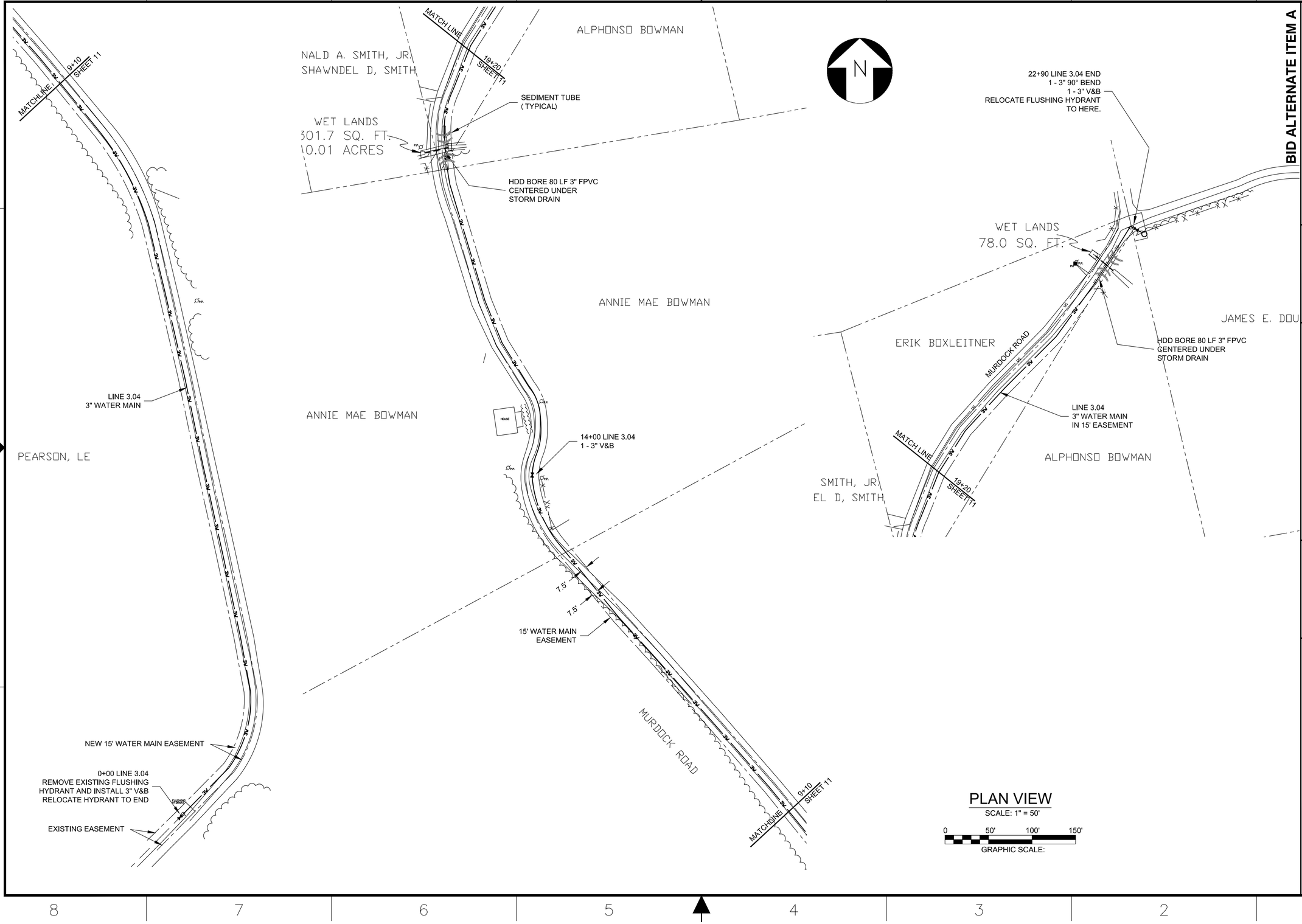
Water and Sewer Department
PHASE 1-C WATER MAINS



PLAN VIEW
SCALE: 1" = 50'

0 50' 100' 150'
GRAPHIC SCALE:

BID ALTERNATE ITEM A

WATER MAIN PLAN
LINE 3.04
MURDOCK ROAD

BT / RB	BT	APPROVED		REV.	
DESIGN	DRAWN	DWG NO.	ENG339-01	SHEET	11 OF 19
DATE	SEP 19, 2014				
SCALE	AS SHOWN				

REVISIONS			
ZONE	REV	DESCRIPTION	DATE	APPROVED
	1	ADDED BID ALTERNATES	4/10/15	

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PHASE 1-C WATER MAINS

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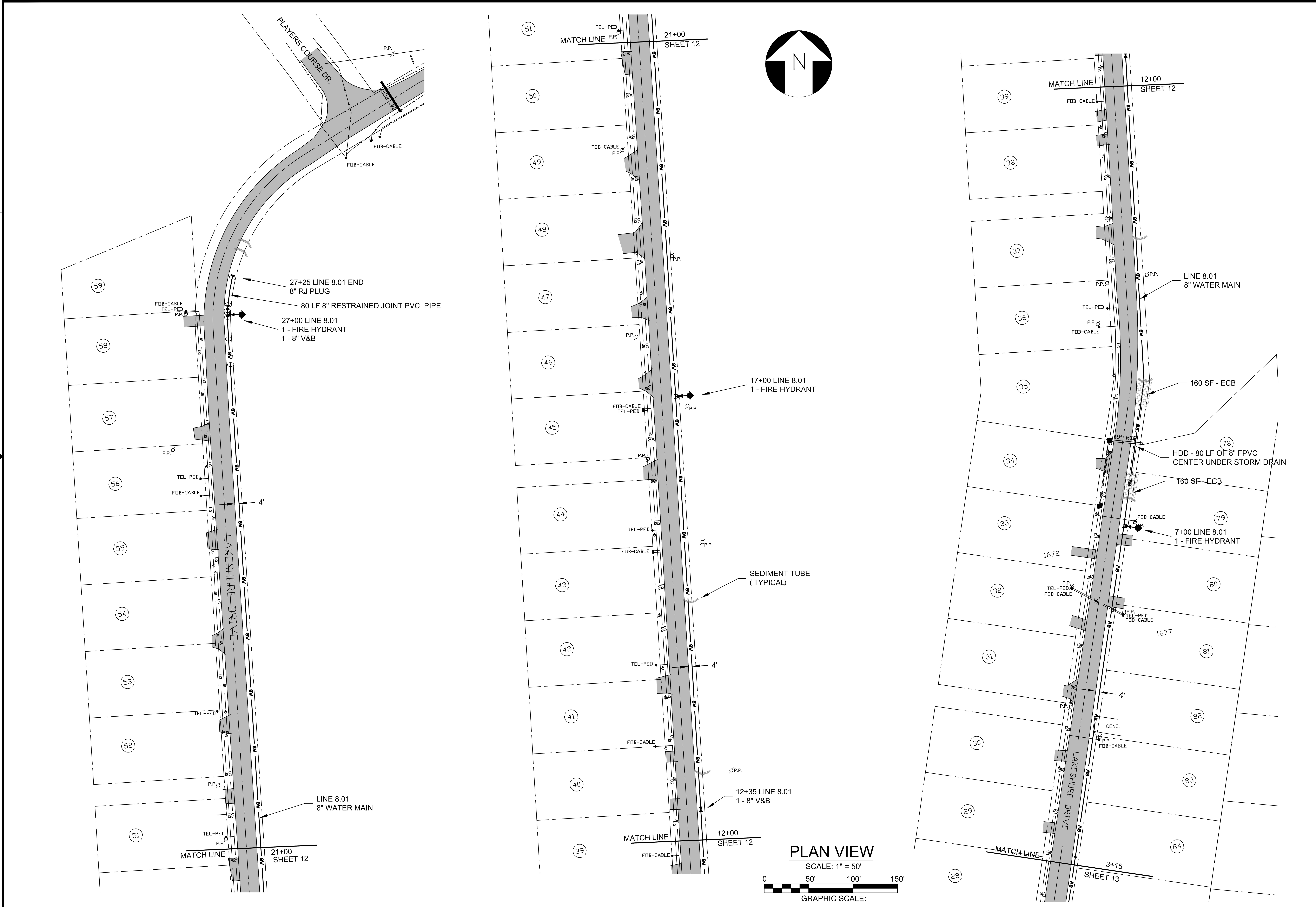


WATER MAIN PLAN
LINE 8.01
LAKESHORE DR.

DESIGN	DRAWN	APPROVED
BT / RB	BT	

DATE	DWG NO.	REV
SEP 19, 2014	ENG339-01	

SCALE	SHEET	OF
AS SHOWN	12	19

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER NO. 9429 WILLIAM A. TIMMONS

William A. Timmons 9/19/14

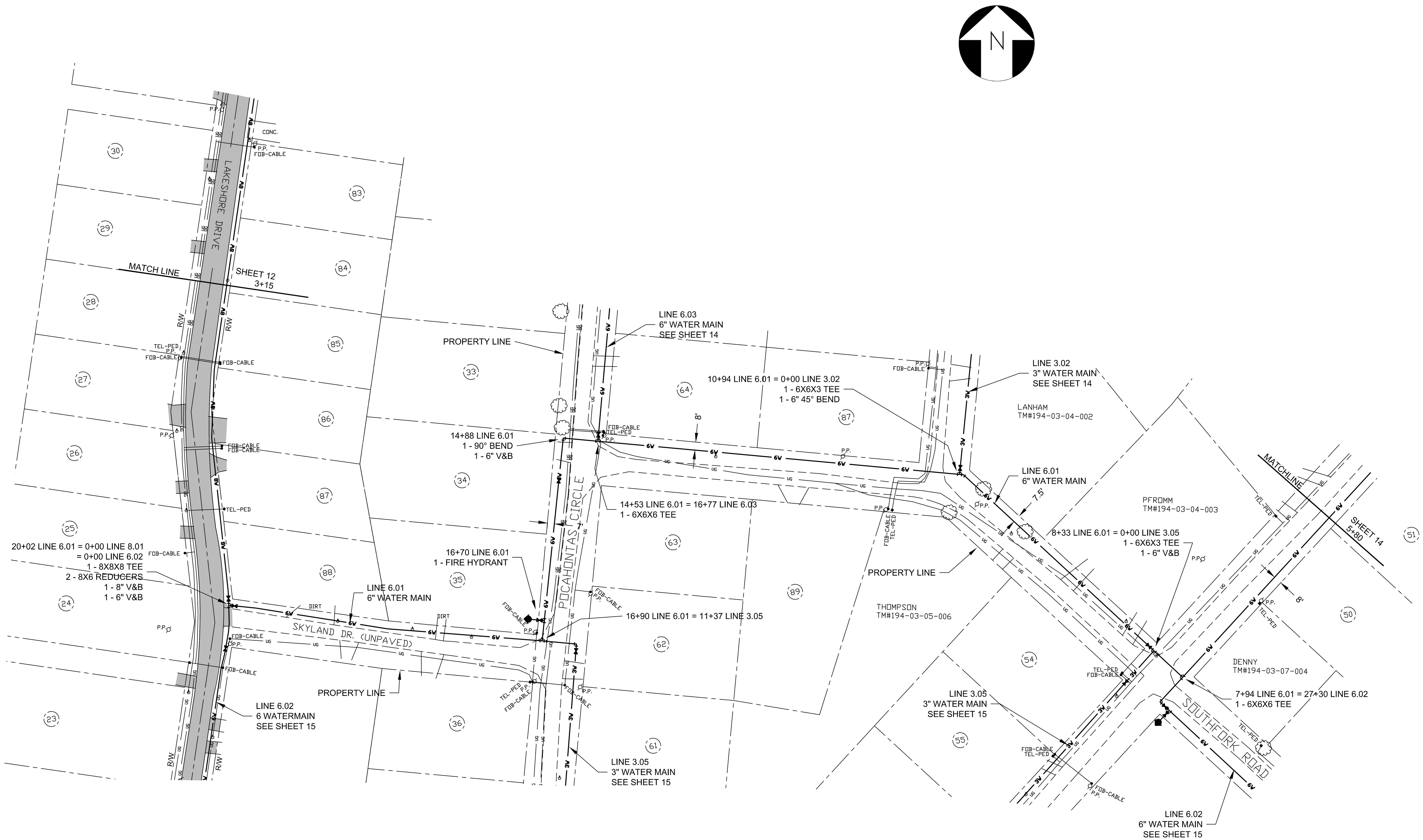
REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED

COUNTY OF CLARENDON

Clarendon County Engineering
411 SUNSET DR. - MANNING, S.C. 29102
(803) 433-3256 FAX: (803) 435-2208

Clarendon County
Water and Sewer Department
PHASE 1-C WATER MAINS



PLAN VIEW

SCALE: 1" = 50'

0 50' 100' 150'

GRAPHIC SCALE:

WATER MAIN PLAN
LINE 6.01 AND LINE 8.01
LAKESHORE TO POCAHONTAS

DESIGN	DRAWN	APPROVED
BT / RB	BT	

DATE	DWG NO.	REV
SEP 19, 2014	ENG339-01	

SCALE	SHEET	OF
AS SHOWN	13	19

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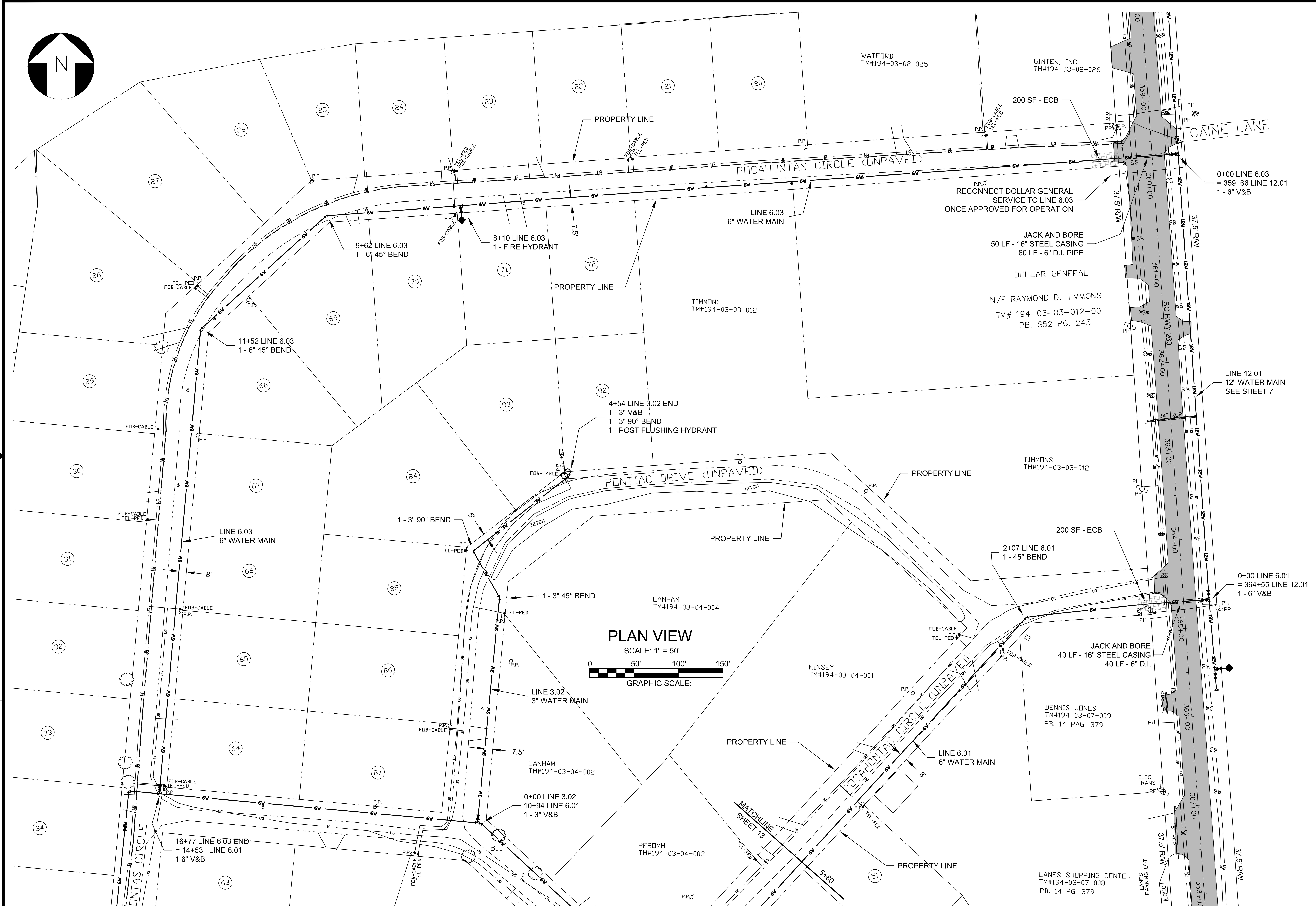

WATER MAIN PLAN
LINES 6.01, 6.03, AND 3.02
POCAHONTAS CIR. - PONTIAC DR.

DESIGN	DRAWN	APPROVED
BT / RB	BT	

DATE: SEP 19, 2014
DWG NO.: ENG339-01
SCALE: AS SHOWN
SHEET 14 OF 19
REV

REVISIONS: ZONE | REV | DESCRIPTION | DATE | APPROVED

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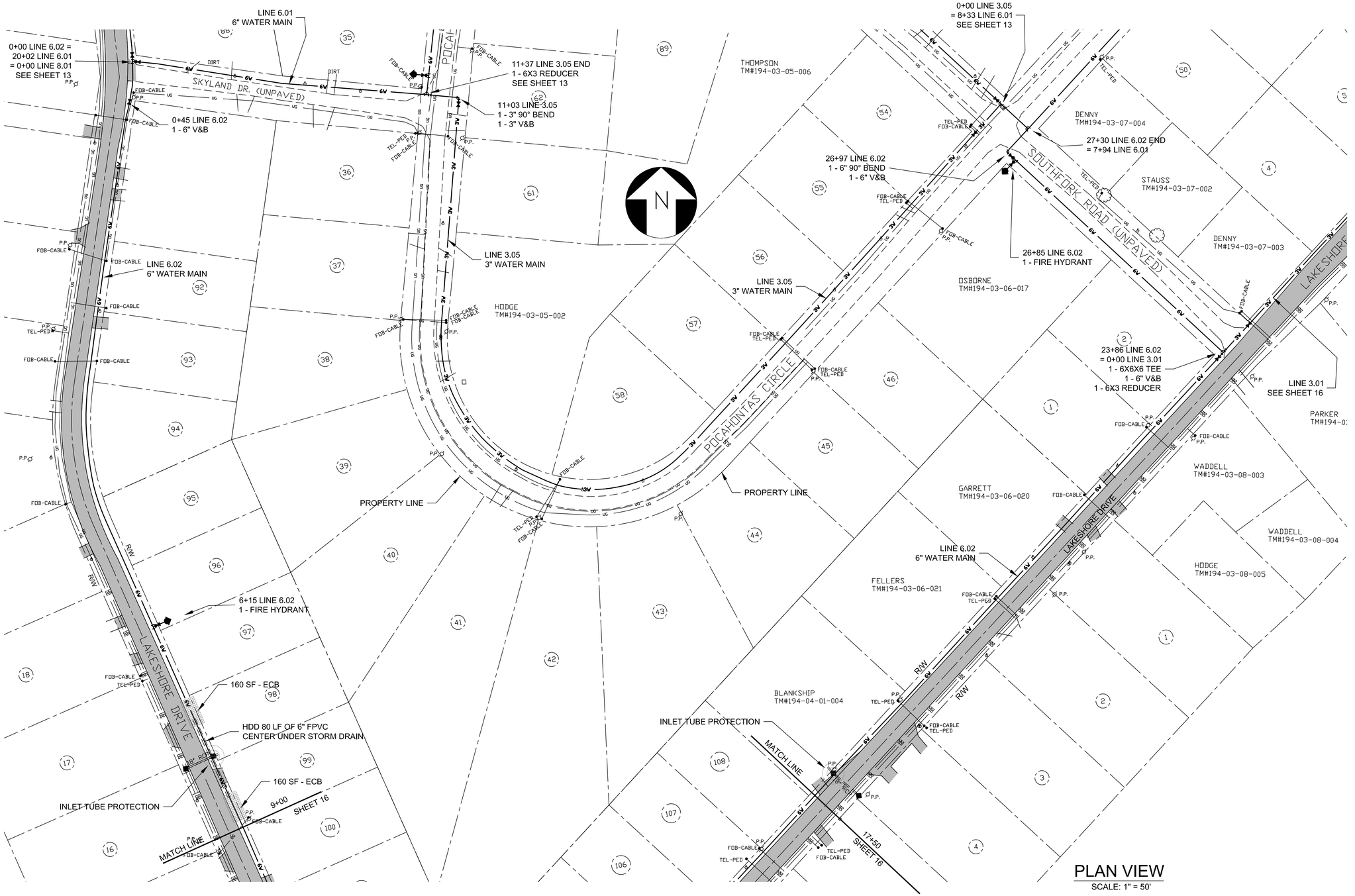

WATER MAIN PLAN
LINE 3.05 AND LINE 6.02
LAKESHORE - POCAHONTAS

BT / RB	BT	APPROVED	ENG339-01	SHEET	15
DESIGN	DRAWN	DWG NO.		OF	19
DATE	SEP 19, 2014			REV.	
SCALE	AS SHOWN				

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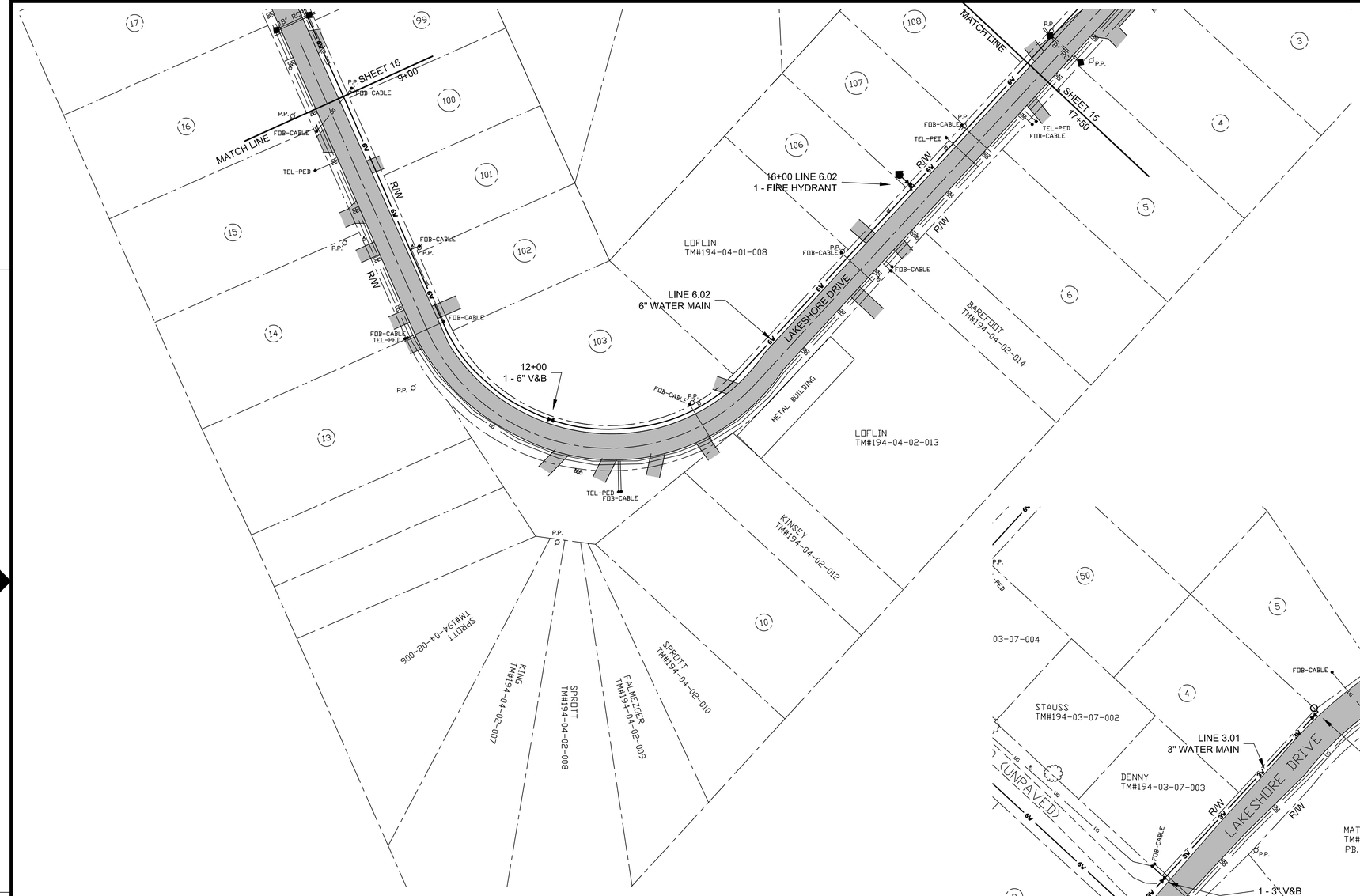

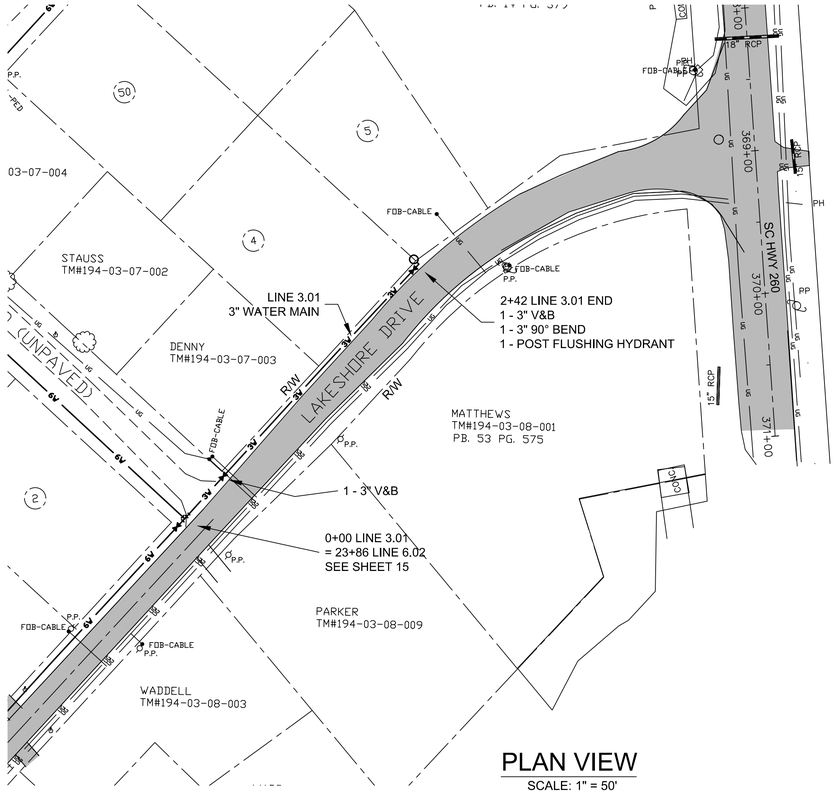

WATER MAIN PLAN
LINE 6.02 AND LINE 3.01
LAKESHORE - POCAHONTAS

BT / RB	BT	APPROVED		SHEET	16
DESIGN	DRAWN		DWG NO.		OF 19
DATE	SEP 19, 2014		ENG339-01		REV.
SCALE	AS SHOWN				

REGISTERED LANDSCAPE ARCHITECT
NO. 429
9/19/14

REVISIONS			
ZONE	REV	DESCRIPTION	DATE
			APPROVED

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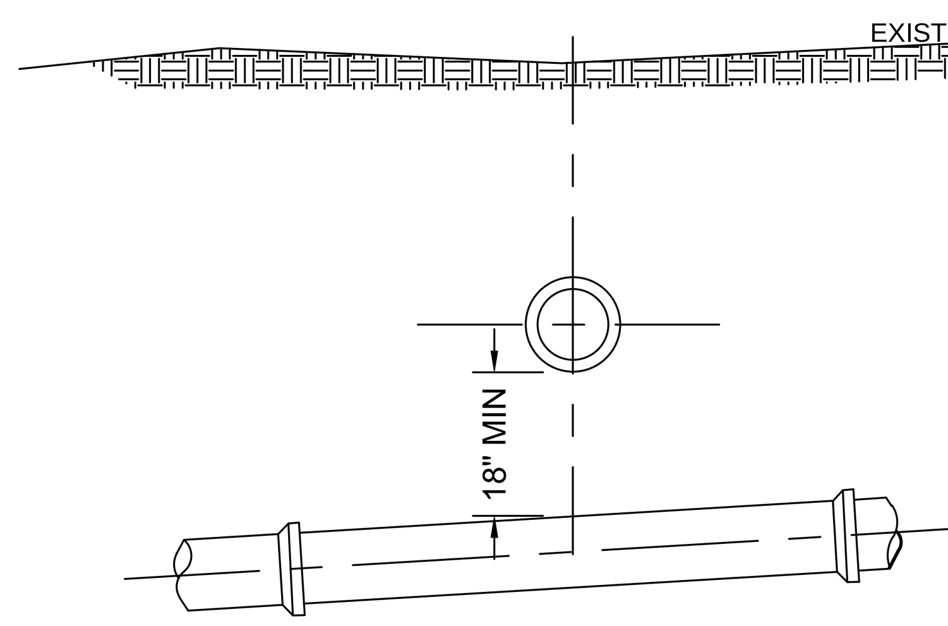
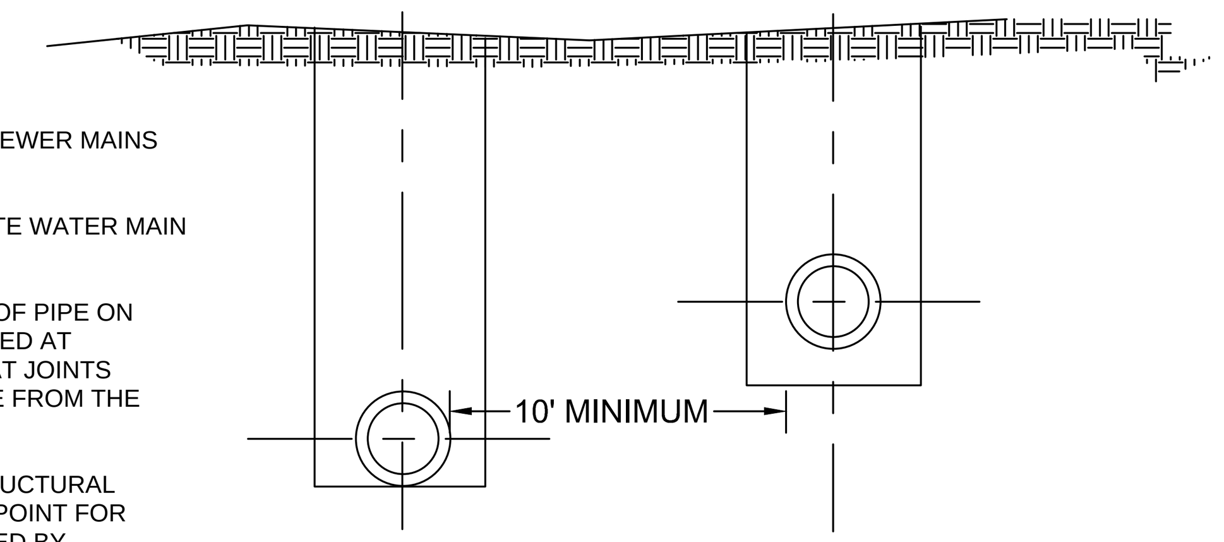
PHASE 1-C WATER MAINS

WATER MAIN DETAILS



CROSSING

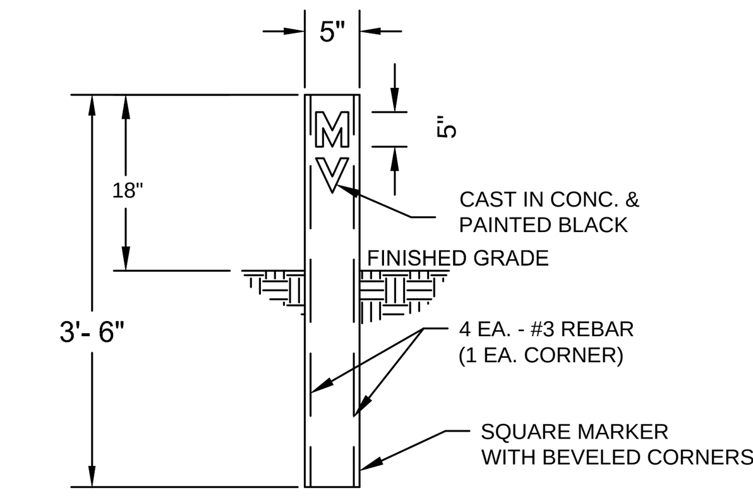


PARALLEL

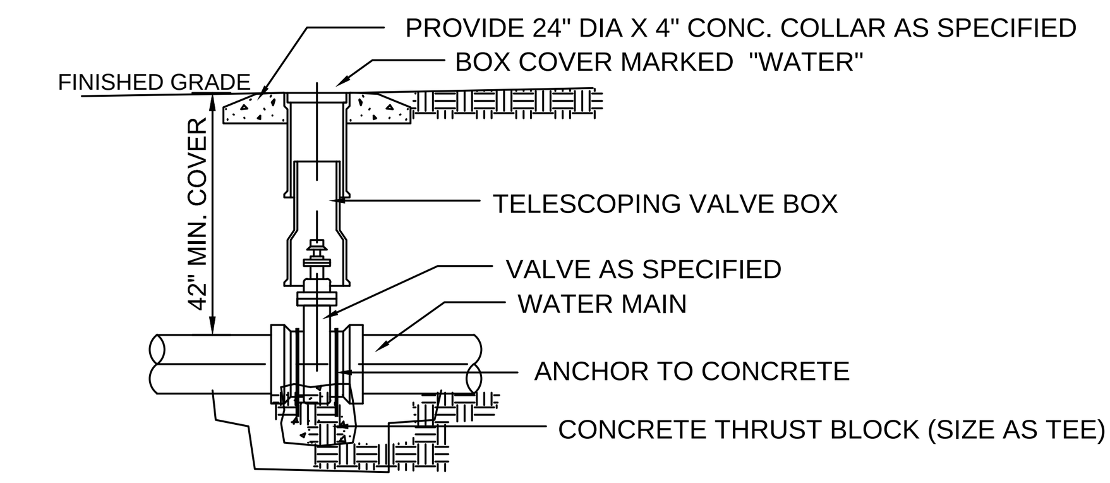
1. SEPARATE WATER AND SEWER MAINS AS SHOWN.
2. WHERE POSSIBLE, LOCATE WATER MAIN ABOVE SEWER MAIN..
3. LOCATE A FULL LENGTH OF PIPE ON EACH NEW MAIN CENTERED AT CROSSING POINT SO THAT JOINTS ARE AS FAR AS POSSIBLE FROM THE POINT OF CROSSING.
4. PROVIDE ADEQUATE STRUCTURAL SUPPORT AT CROSSING POINT FOR UPPER MAIN AS APPROVED BY THE ENGINEER.
5. NO WATER MAIN SHALL PASS THROUGH OR COME INTO CONTACT WITH ANY PART OF A SEWER MANHOLE.
6. PROVIDE ONE JOINT OF DUCTILE IRON SEWER MAIN PIPING CENTERED ON THE WATER MAIN AT ALL CROSSING OF WATER AND SEWER MAINS.

WATER - SEWER MAIN SEPARATION DETAIL
NOT TO SCALE

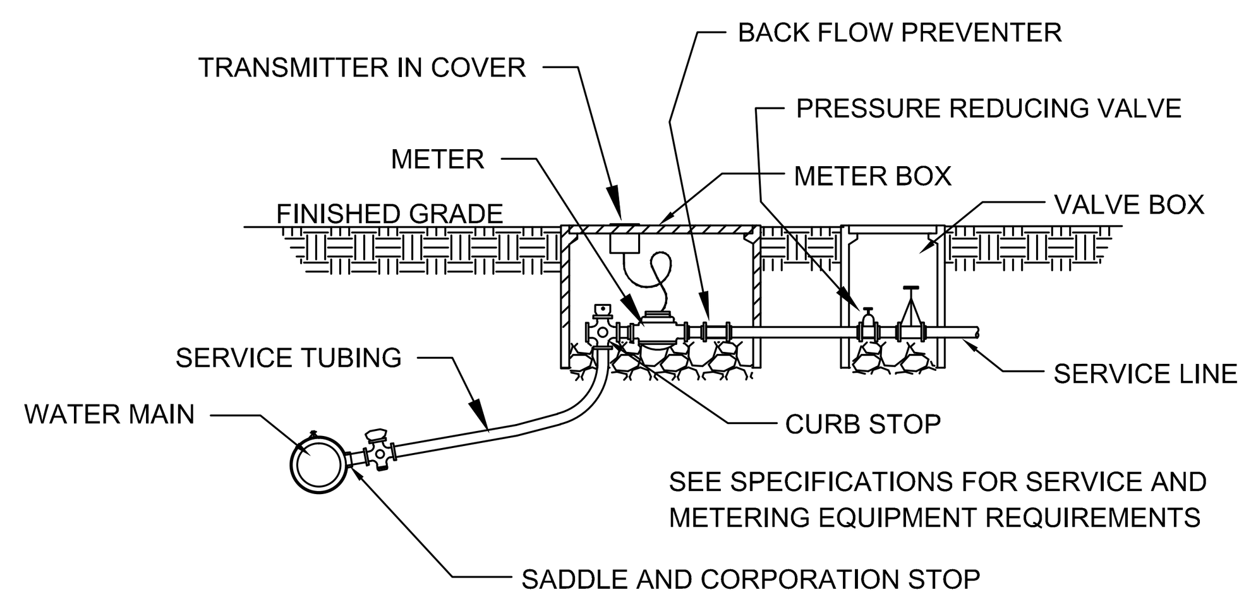
NOTES:
1. VALVE MARKERS SHALL BE PLACED AT R/W.
2. LETTERS "MV" SHALL FACE TOWARDS VALVE.
3. MARKER SHALL HAVE BRASS OR BRONZE EMBED ON TOP OR SIDE.
4. CONTRACTOR SHALL STAMP DISTANCE TO CENTER OF VALVE INTO EMBED.
5. BLOW-OFF ASSEMBLY SHALL INCLUDE 1 EA. MARKER W/ "BO" OR "MV" CAST.



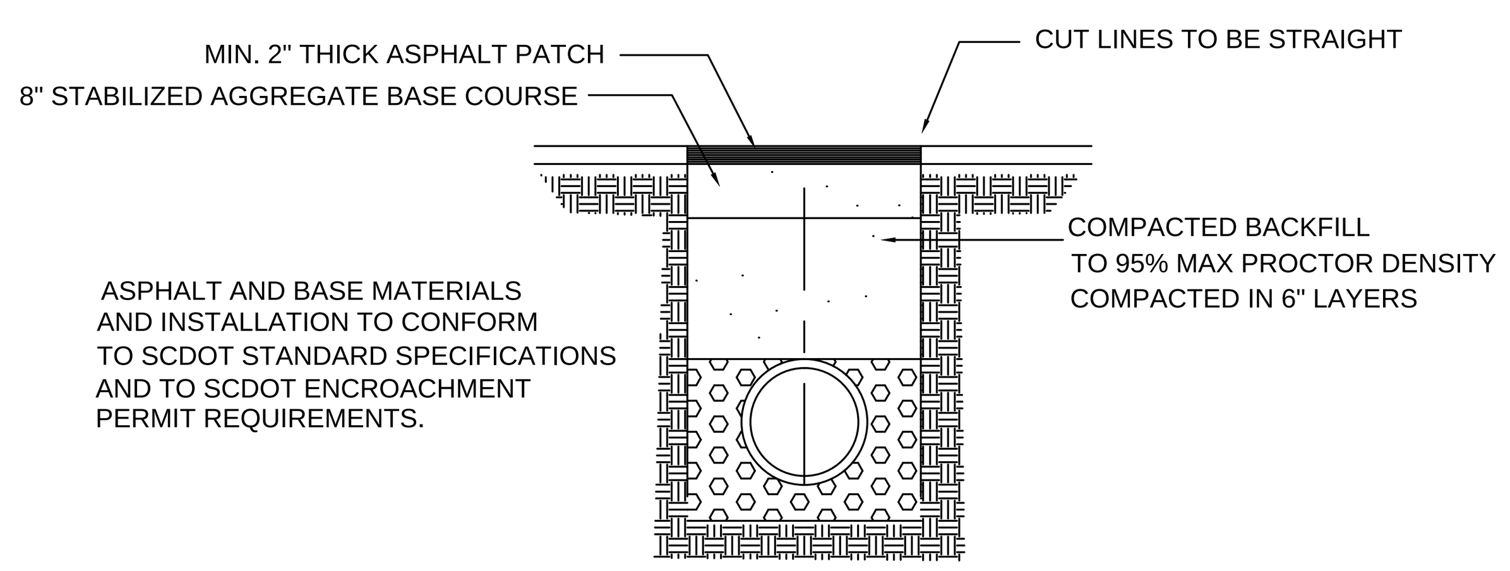
VALVE MARKER DETAIL
NOT TO SCALE



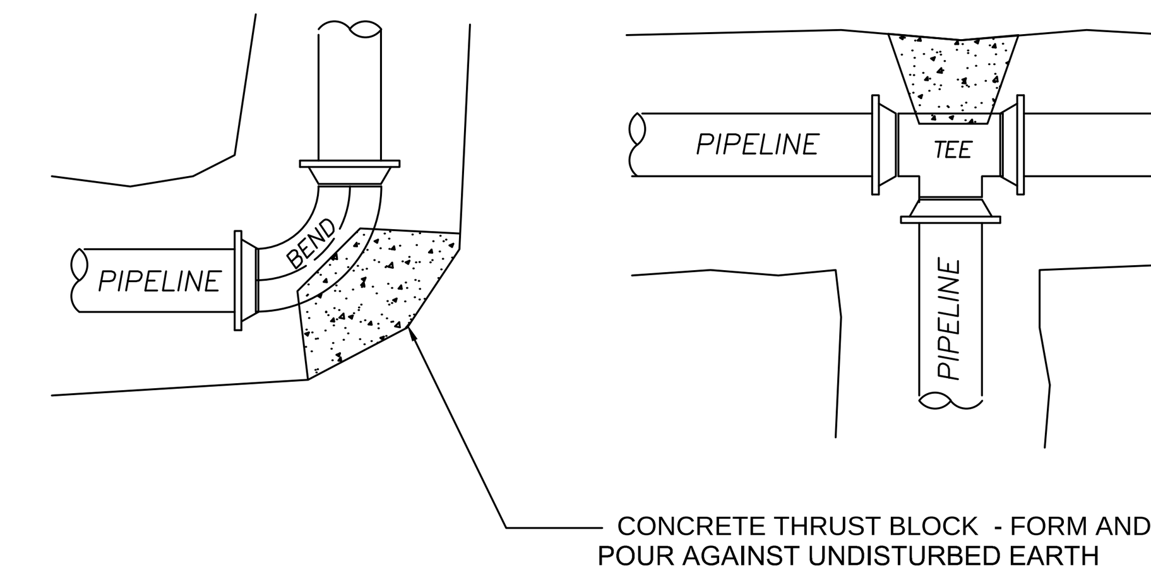
VALVE AND BOX DETAIL
NOT TO SCALE



WATER SERVICE DETAIL
NOT TO SCALE



ASPHALT PAVEMENT CUT DETAIL
NOT TO SCALE



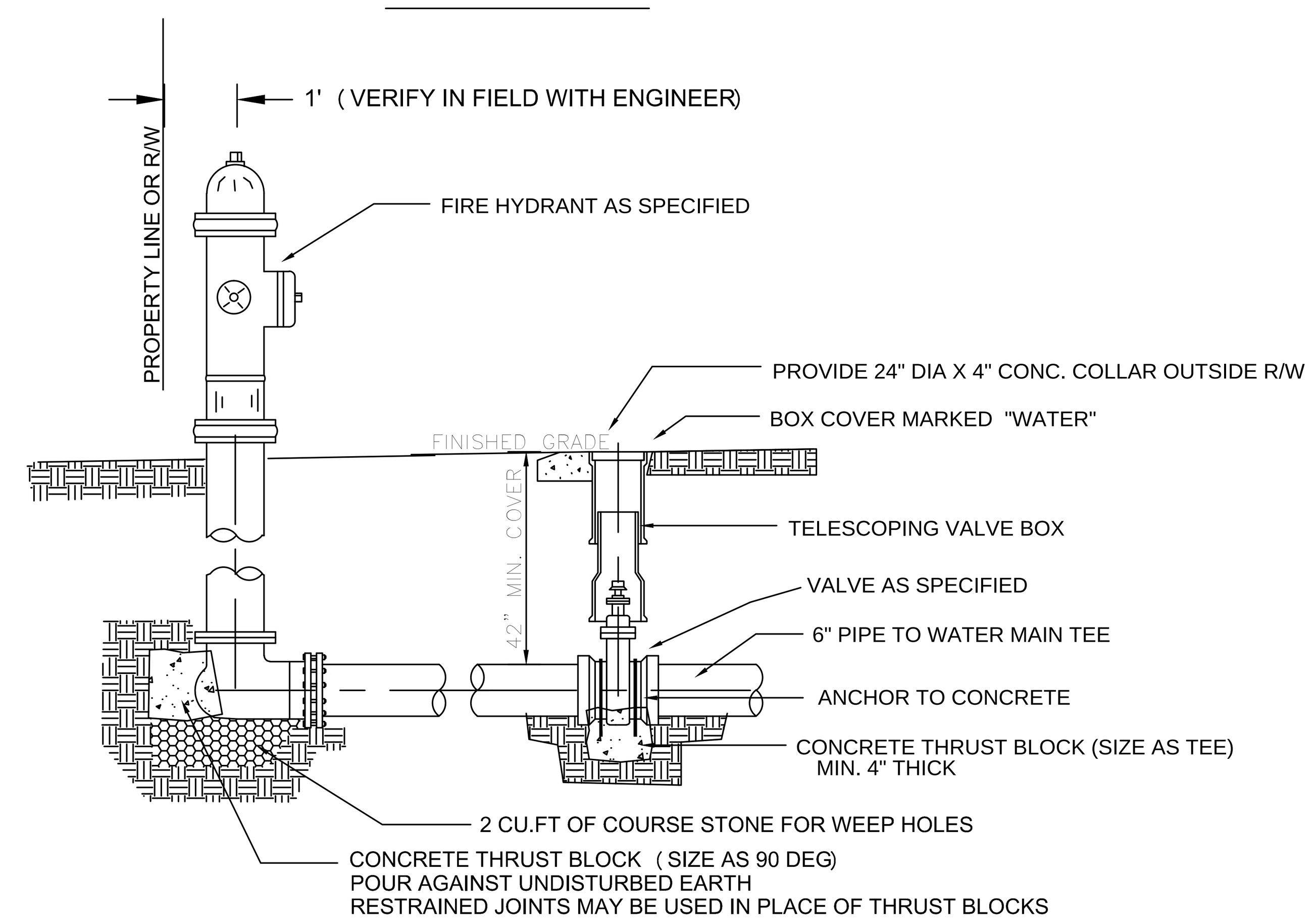
THRUST BLOCK AREA IN SQ.FT. ON UNDISTURBED SOIL

BLOCK BEARING AREA REQUIRED FOR 1000 PSF SOIL			
DIAMETER	45 DEG	90 DEG	TEE/PLUG
2	0.7	0.9	0.5
3	1.5	2.1	1.1
4	2.7	3.8	1.9
6	6.0	8.5	4.2
8	10.7	15.1	7.5
10	16.7	23.6	11.8
12	24.0	33.9	17.0

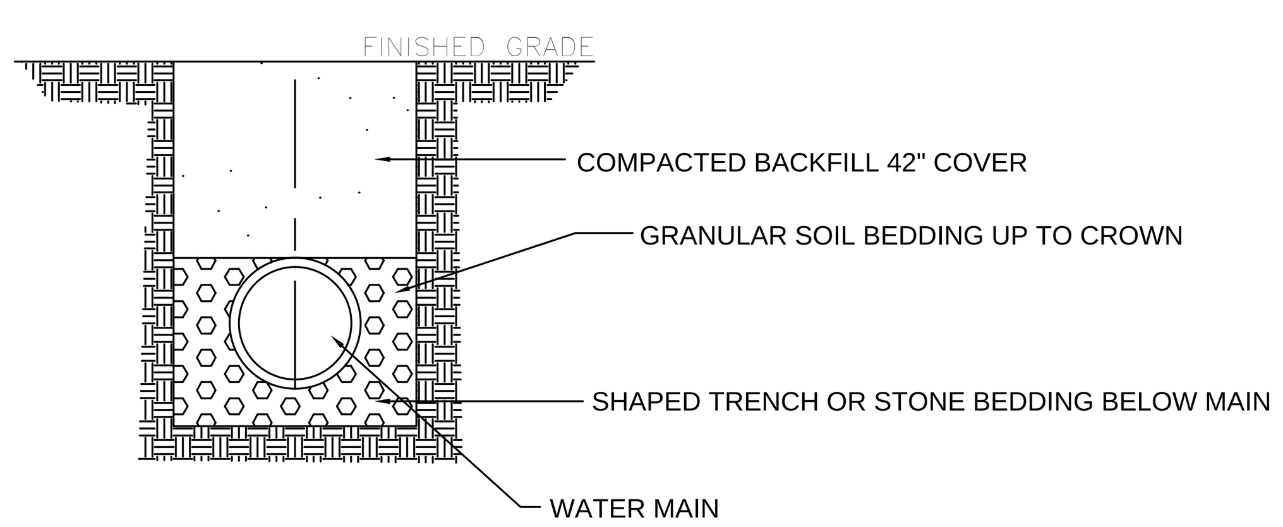
ADJUSTED AREA = CHART AREA X (1000 / SOIL BEARING STRENGTH)
VERIFY SOIL STRENGTH AND BLOCK DIMENSIONS WITH ENGINEER

TYPICAL SOILD BEARING STRENGTHS
COARSE AND FINE COMPACTED SAND 4,000 PSF
MEDIUM CLAY 2,000 PSF
SOFT CLAY 1,000 PSF

THRUST BLOCK DETAILS
NOT TO SCALE

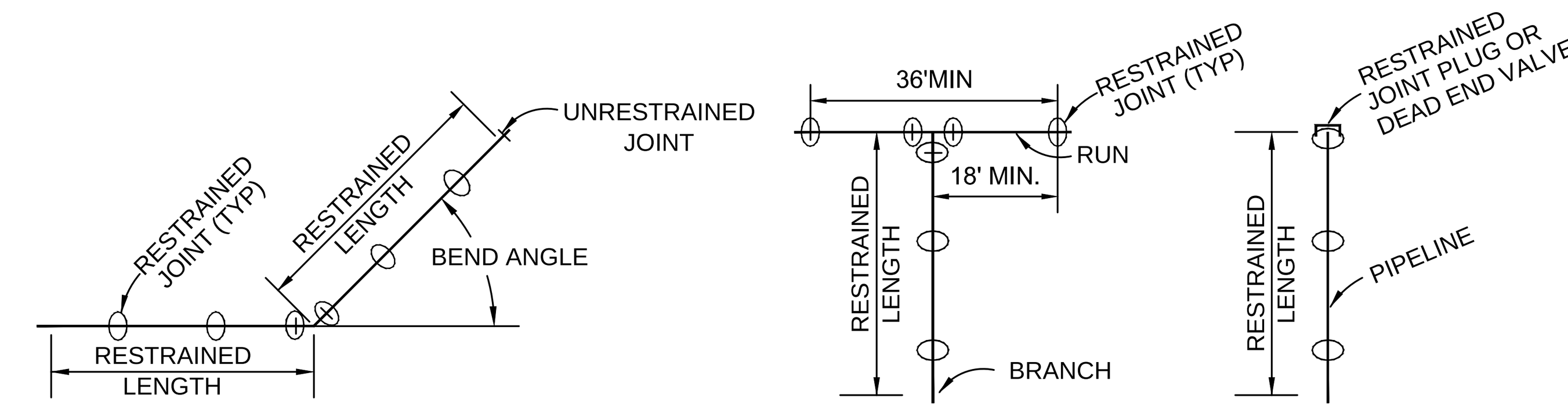


FIRE HYDRANT DETAIL
NOT TO SCALE



WATERMAIN BEDDING DETAIL
NOT TO SCALE

ALL FITTINGS, HYDRANTS, VALVES, DEAD ENDS, ETC. ARE TO BE RESTRAINED BY THRUST BLOCK OR RESTRAINED JOINTS AS SHOWN. PLAN REQUIREMENTS TAKE PRECEDENCE OVER TYPICAL DETAILS.

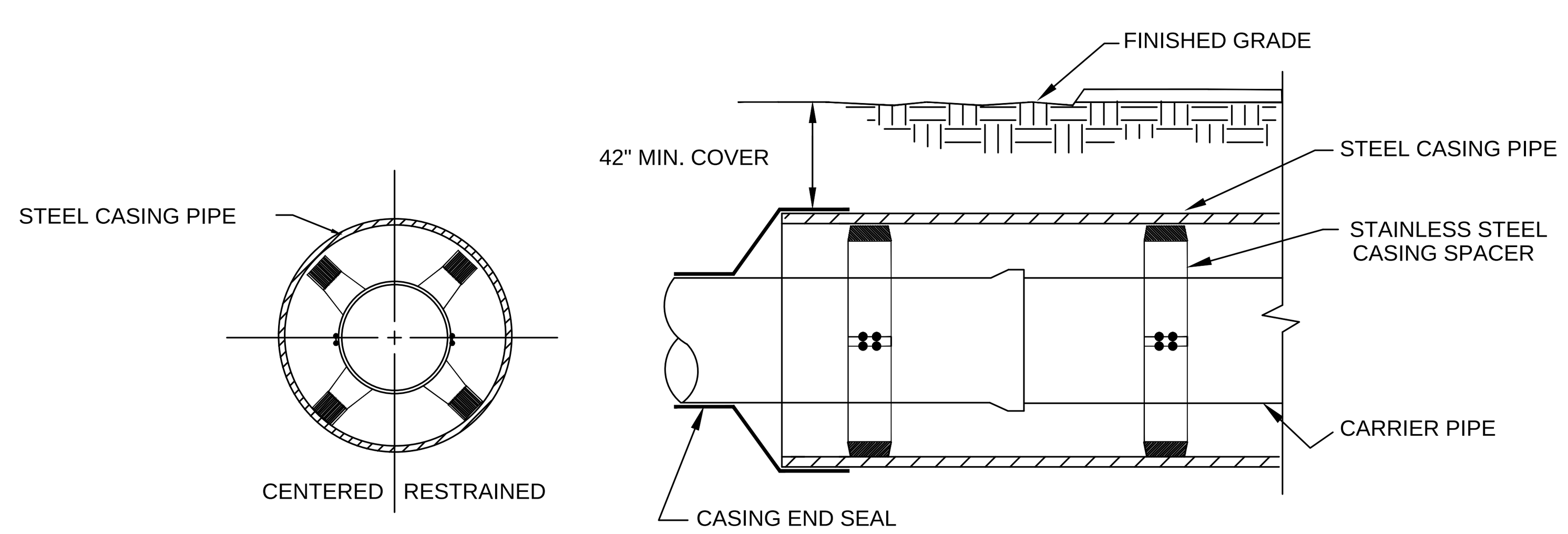


PIPE SIZE	11 1/4° BEND	22 1/2° BEND	45° BEND	90° BEND	TEE*	DEAD END
3"	8'	10'	10'	20'	15'	40'
6"	8'	10'	15'	25'	20'	60'
8"	8'	10'	15'	35'	30'	75'
10"	10'	12'	18'	40'	40'	90'
12"	10'	15'	20'	45'	45'	100'

* BRANCH LENGTH

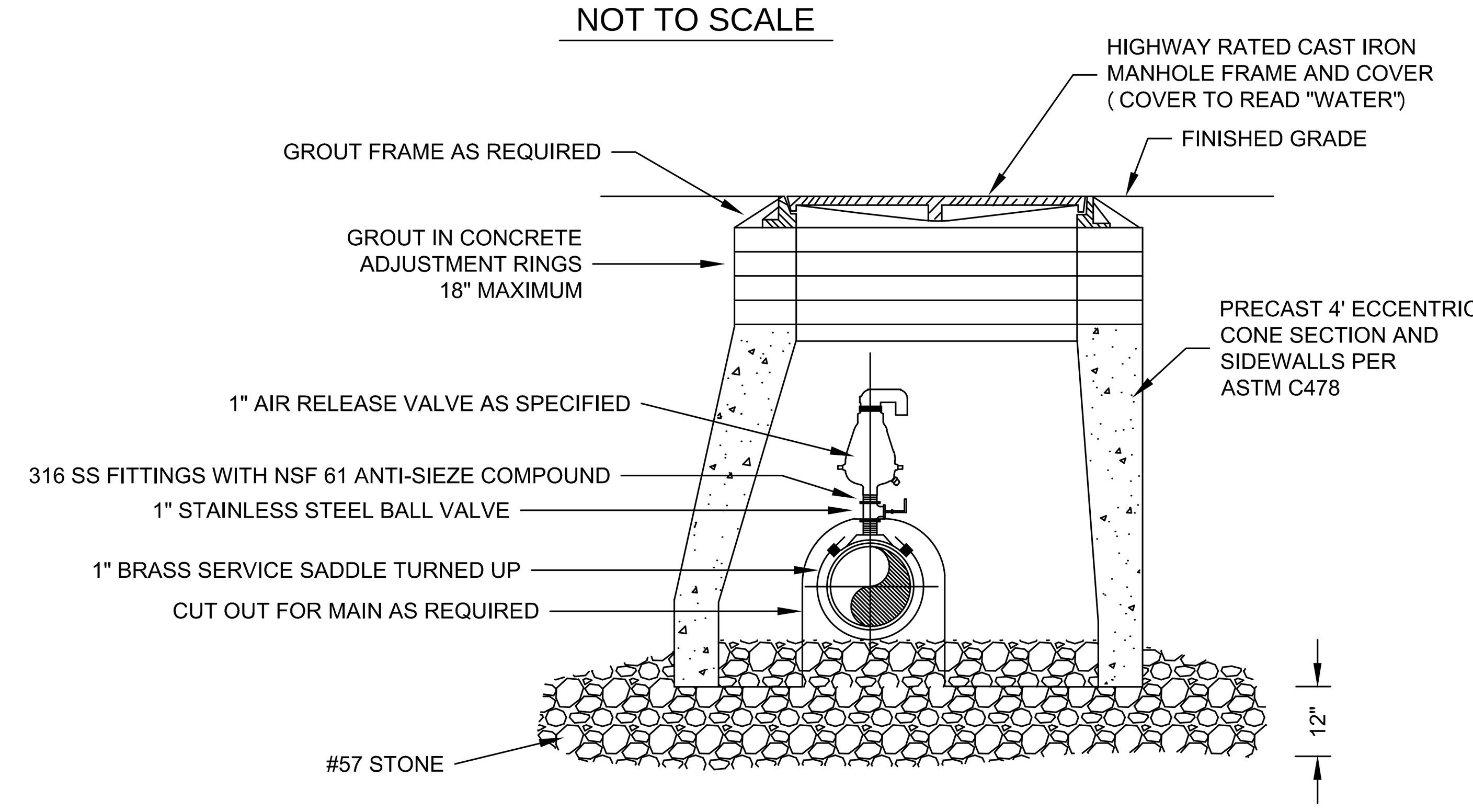
1. TABLE IS BASED ON PVC WITH TRENCH BEING BACKFILLED TO A MINIMUM DEPTH OF 3' WITH A SILTY SAND (SM) SOIL. VERIFY REQUIREMENTS WITH ENGINEER FOR OTHER CONDITIONS.
2. LENGTHS SHOWN ARE MINIMUM. LENGTHS SHOWN ON PLAN SHEETS OR OTHER DETAILS WILL TAKE PRECEDENCE.
3. RESTRAIN ALL JOINTS LOCATED WITHIN RESTRAINED LENGTHS SHOWN.

FITTINGS RESTRAINED JOINT LENGTHS
NOT TO SCALE



1. SEE PLAN FOR LENGTHS OF CASING AND CARRIER PIPE. PAY LENGTH FOR D.I. CARRIER IS EQUAL TO CASING LENGTH. PROVIDE ADDITIONAL D.I. LENGTH TO JOINTS OR FITTINGS AS REQUIRED.
2. INSTALL SPACERS AND CASING END SEAL PER MFGR GUIDELINES AND SCDOT REQUIREMENTS.

JACK AND BORE CASING DETAIL
NOT TO SCALE



AIR RELEASE VALVE DETAIL
NOT TO SCALE

BT / RB DESIGN	BT DRAWN	APPROVED	
DATE SEP 19, 2014	DWG NO. ENG339-01		REV
SCALE AS SHOWN	SHEET 17	OF 19	

ZONE	REV	DESCRIPTION	DATE	APPROVED
	1	REVISED AIR REL. VALVE DETAIL	4/10/15	

REVISIONS

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Water and Sewer Department
PHASE 1-C WATER MAINS

CONSTRUCTION SEQUENCE

1. Notify SCDHEC Regional Office 48 hours prior to land disturbing activities.
2. Coordinate trenching activity and erosion control measures with engineer prior to beginning work.
3. Place silt fence and other controls as shown or specified.
4. Close and stabilize all trenches as soon as possible after pipe installation.
5. Provide temporary grassing if required as specified.
6. Provide permanent stabilization as shown and specified.
7. Remove temporary sediment and control measures only after entire area draining to the structure is stabilized and approved by Engineer.
8. Maintain all sediment and erosion control structures for the extent of the project.

DISTURBED AREA CALCULATION:

8' WIDTH AVERAGE X 26,000' = 208,000 SF = 4.8 ACRES

SEEDING NOTES

TEMPORARY SEEDING NOTES:

1. FOR AUGUST 15 TO APRIL 15 APPLY MINIMUM 1.5 LB OF RYE (GRAIN) PER 1,000 SQ. FT. FOR APRIL 15 TO AUGUST 15 APPLY MINIMUM OF 1.2 LB OF GERMAN MILLET PER 1,000 SQ. FT. APPROVED ALTERNATE OR MIXES MAY BE USED.

2. FOLLOW RECOMMENDATIONS OF SOIL TEST OR APPLY 70 LBS OF AGRICULTURAL LIMESTONE AND 25 LBS OF 10-10-10 FERTILIZER PER 1,000 SQ.FT.

3. PREPARE SEEDBED, PLANT AND MULCH AS DIRECTED BELOW.

4. IF NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 1 LB PER 1,000 SQ.FT. ANNUAL LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

5. REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY.

6. VERIFY ALL PLANTING DETAILS WITH SEED SUPPLIER.

PERMANENT SEEDING NOTES:

1. ALL UNPAVED (NO STONE SURFACE) DISTURBED AREAS (AND LAWN TO BE REESTABLISHED) OUTSIDE PLANTING BED IS TO BE SEEDED WITH 0.3 LB/1,000 SQ.FT. OF BERMUDAGRASS MARCH 15 - JUNE 30 OR 1.5 LB /1,000 SQ.FT. OF TALL FESCUE AUG 15 - NOV 30. APPROVED ALTERNATES OR MIXES MAY BE USED.

2. FOLLOW RECOMMENDATIONS OF SOIL TEST OR APPLY 70 LBS OF AGRICULTURAL LIMESTONE AND 25 LBS OF 10-10-10 FERTILIZER PER 1,000 SQ.FT.

3. PREPARE SEEDBED, PLANT AND MULCH AS DIRECTED BELOW.

4. REPAIR AND REFERTILIZE DAMAGED AREAS IMMEDIATELY.

5. VERIFY ALL PLANTING DETAILS WITH SEED SUPPLIER.

SEEDBED PREPARATION NOTES:

1. REMOVE ANY UNDESIRABLE GROUNDCOVER INCLUDING ANY TEMPORARY SEEDING FOR PERMANENT SEEDING INSTALLATION.

2. RIP THE AREA TO A MINIMUM DEPTH OF 4". ADD TOPSOIL IF REQUIRED FOR POOR SOIL AREAS.

3. REMOVE ALL LOOSE ROCKS, ROOTS, ETC. LEAVING SURFACE SMOOTH AND UNIFORM CONFORMING TO GRADES SHOWN ON GRADING PLAN.

4. APPLY SEED, LIME, FERTILIZER AND MIX WITH THE SOIL AS RECOMMENDED BY NURSERY OR SUPPLIER.

5. MULCH IMMEDIATELY AFTER SEEDING WITH 100 LBS PER 1,000 SQ.FT. OF STRAW OR APPROVED EQUAL. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR BY USE OF A MULCH ANCHORING TOOL.

SILT FENCE GENERAL NOTES:

1. Do not place silt fence across channels or in other areas subject to concentrated flows. Silt fence should not be used as a velocity control BMP. Concentrated flows are any flows greater than 0.5 cfs.

2. Maximum sheet or overland flow path length to the silt fence shall be 100-feet.

3. Maximum slope steepness (normal [perpendicular] to the fence line) shall be 2:1.

4. Silt fence joints, when necessary, shall be completed by one of the following options:
   - Wrap each fabric together at a support post with both ends fastened to the post, with a 1-foot minimum overlap;
   - Overlap silt fence by installing 3-feet passed the support post to which the new silt fence roll is attached. Attach old roll to new roll with heavy-duty plastic ties; or,
   - Overlap entire width of each silt fence roll from one support post to the next support post.

5. Attach filter fabric to the steel posts using heavy-duty plastic ties that are evenly spaced within the top 8-inches of the fabric.

6. Install the silt fence perpendicular to the direction of the stormwater flow and place the silt fence the proper distance from the toe of steep slopes to provide sediment storage and access for maintenance and cleanout.

7. Install Silt Fence Checks (Tie-Backs) every 50-100 feet, dependent on slope, along silt fence that is installed with slope and where concentrated flows are expected or are documented along the proposed/installed silt fence.

SILT FENCE - POST REQUIREMENTS

1. Silt Fence posts shall be 48-inch long steel posts that meet, at a minimum, the following physical characteristics.
   --Composed of a high strength steel with a minimum yield strength of 50,000 psi.
   --Include a standard "T" section with a nominal face width of 1.38-inches and a nominal "T" length of 1.48-inches.
   --Weigh 1.25 pounds per foot (± 8%)

2. Posts shall be equipped with projections to aid in fastening of filter fabric.

3. Steel posts may need to have a metal soil stabilization plate welded near the bottom when installed along steep slopes or installed in loose soils. The plate should have a minimum cross section of 17-square inches and be composed of 15 gauge steel, at a minimum. The metal soil stabilization plate should be completely buried.

4. Install posts to a minimum of 24-inches. A minimum height of 1- to 2- inches above the fabric shall be maintained, and a maximum height of 3 feet shall be maintained above the ground.

5. Post spacing shall be at a maximum of 6-feet on center.

SILT FENCE - FABRIC REQUIREMENTS

1. Silt fence must be composed of woven geotextile filter fabric that consists of the following requirements:
   - Composed of fibers consisting of long chain synthetic polymers of at least 85% by weight of polyolefins, polyesters, or polyamides that are formed into a network such that the filaments or yarns retain dimensional stability relative to each other;
   - Free of any treatment or coating which might adversely alter its physical properties after installation;
   - Free of any defects or flaws that significantly affect its physical and/or filtering properties; and,
   - Have a minimum width of 36-inches.

2. Use only fabric appearing on SC DOT's Qualified Products Listing (QPL), Approval Sheet #34, meeting the requirements of the most current edition of the SC DOT Standard Specifications for Highway Construction.

3. 12-inches of the fabric should be placed within excavated trench and toed in when the trench is backfilled.

4. Filter Fabric shall be purchased in continuous rolls and cut to the length of the barrier to avoid joints.

5. Filter Fabric shall be installed at a minimum of 24-inches above the ground.

SILT FENCE - INSPECTION & MAINTENANCE

1. Regular inspections of silt fence shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.

2. Attention to sediment accumulations along the silt fence is extremely important. Accumulated sediment should be continually monitored and removed when necessary. Remove accumulated sediment when it reaches 1/3 the height of the silt fence.

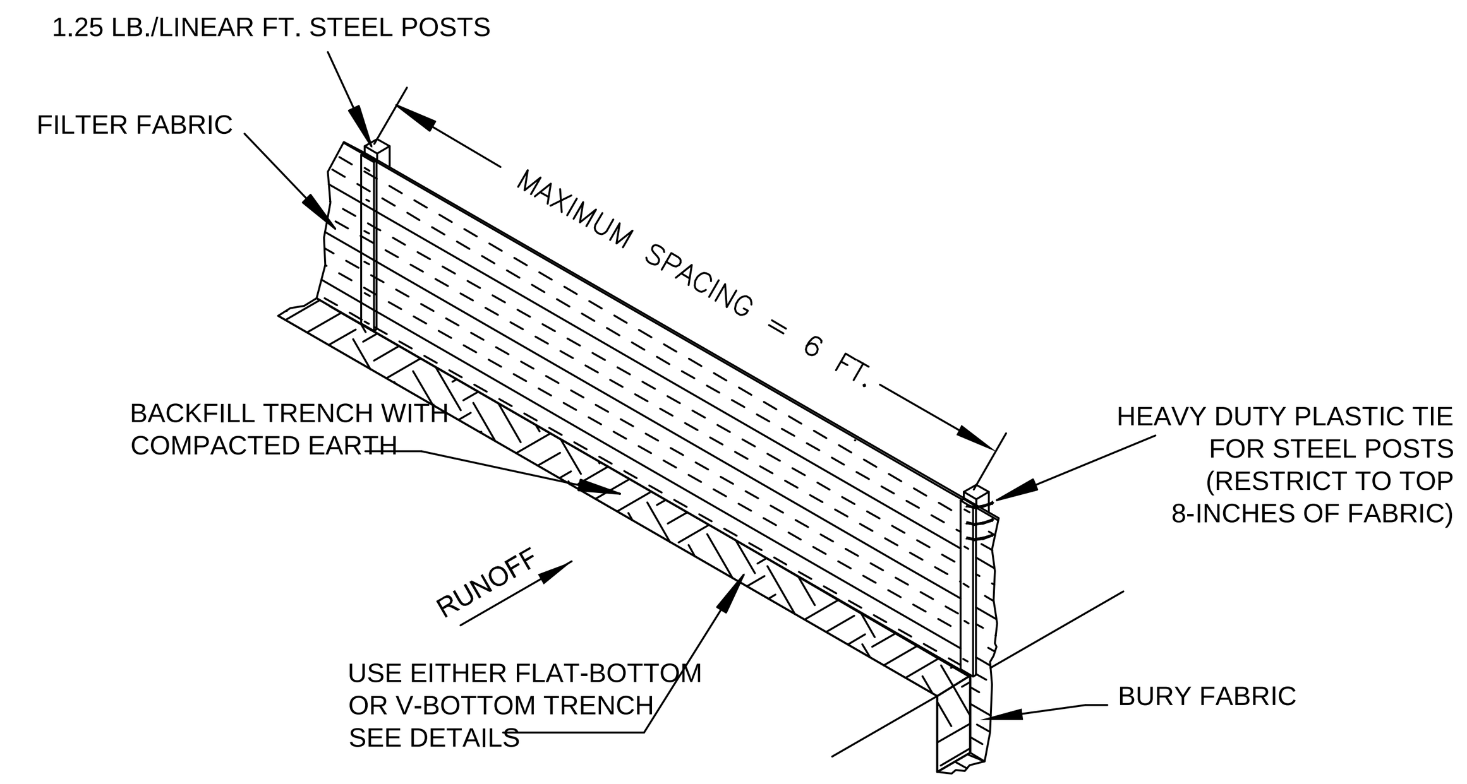
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.

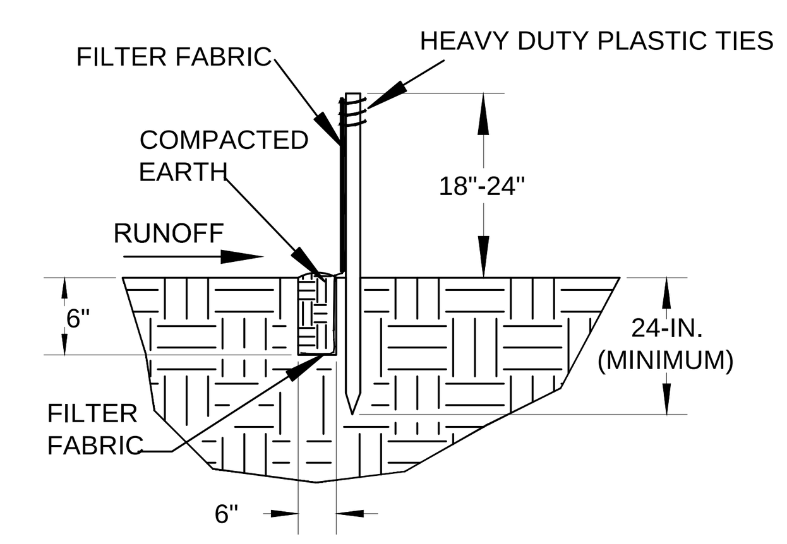
6. Check for areas where stormwater runoff has eroded a channel beneath the silt fence, or where the fence has sagged or collapsed due to runoff overtopping the silt fence. Install checks/tie-backs and/or reinstall silt fence, as necessary.

7. Check for tears within the silt fence, areas where silt fence has begun to decompose, and for any other circumstance that may render the silt fence ineffective. Removed damaged silt fence and reinstall new silt fence immediately.

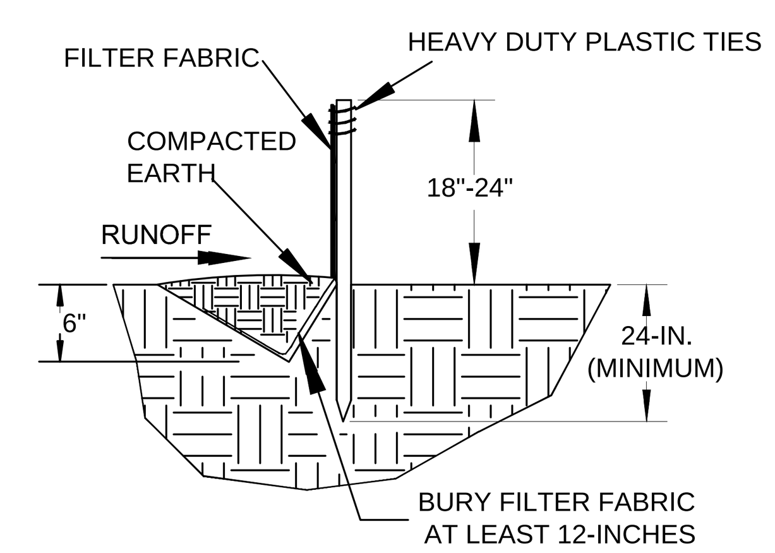
8. Silt fence should be removed within 30 days after final stabilization is achieved and once it is removed, the resulting disturbed area shall be permanently stabilized.

SILT FENCE INSTALLATION DETAILS





FLAT-BOTTOM TRENCH DETAIL



V-SHAPED TRENCH DETAIL

EROSION CONTROL SYMBOL LEGEND

DESCRIPTION EROSION PREVENTION AND SEDIMENT CONTROL	SYMBOL
LAND GRADING:	LG OR
TOPSOILING:	
TEMPORARY SEEDING:	TS
MULCHING:	M
ECB OR TRM	
PERMANENT SEEDING:	PS
SILT FENCE:	
SEDIMENT TUBE:	
FABRIC INLET PROTECTION:	A
SEDIMENT TUBE INLET PROTECTION:	A

EROSION CONTROL NOTES:

1. Implement erosion control features shown prior to construction work on site. If necessary, slopes, which exceed eight (8) vertical feet should be stabilized with synthetic or vegetative mats, in addition to hydroseeding. It may be necessary to install temporary slope drains during construction. Temporary berms may be needed until the slope is brought to grade.

2. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than fourteen (14) days after work has ceased, except as stated below.
a. Where stabilization by the 14th day is precluded by snow cover or frozen ground conditions stabilization measures must be initiated as soon as practicable.
b. Where construction activity on a portion of the Site is temporarily ceased, and earth-disturbing activities will be resumed within 14 days, temporary stabilization measures do not have to be initiated on that portion of the Site.

3. All sediment and erosion control devices shall be inspected once every calendar week. If periodic inspection or other information indicates that a BMP has been inappropriately or incorrectly installed, the Permittee must address the necessary replacement or modification required to correc the BMP within 48 hours of identification.

4. Provide silt fence and/or other control devices, as may be required, to control soil erosion during utility construction. All disturbed areas shall be cleaned, graded, and stabilized with grassing immediately after the utility installation. Fill, cover, and temporary seeding at the end of each day are recommended. If water is encountered while trenching, the water should be filtered to remove any sediments before being pumped back into any waters of the State.

5. All erosion control devices shall be properly maintained during all phases of construction until the completion of all construction activities and all disturbed areas have been stabilized. Additional control devices may be required during construction in order to control erosion and/or offsite sedimentation. All temporary control devices shall be removed once construction is complete and the site is stabilized.

6. The contractor must take necessary action to minimize the tracking of mud onto paved roadway(s) from construction areas and the generation of dust. The contractor shall daily remove mud/soil from pavement, as may be required.

7. Note on subdivisions not included.

8. Temporary diversion berms and/or ditches will be provided as needed during construction to protect work areas from upslope runoff and/or to divert sediment-laden water to appropriate traps or stable outlets.

9. All waters of the State (WoS), including wetlands, are to be flagged or otherwise clearly marked in the field. A double row of silt fence is to be installed in all areas where a 50-foot buffer can't be maintained between the disturbed area and all WoS. A 10-foot buffer should be maintained between the last row of silt fence and all WoS.

10. Litter, construction debris, oils, fuels, and building products with significant potential for impact (such as stockpiles of freshly treated lumber) and construction chemicals that could be exposed to storm water must be prevented from becoming a pollutant source in storm water discharges.

11. A copy of the SWPPP, inspections records, and rainfall data must be retained at the construction site or a nearby location easily accessible during normal business hours, from the date of commencement of construction activities to the date that final stabilizaiton is reached.

12. Initiate stabilization measures on any exposed steep slope (3H:1V or greater) where land-disturbing activities have permanently or temprarily ceased, and will not resume for a period of 7 calendar days.

13. Minimize soil compaction and unless infeasible, preserve topsoil.

14. Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.

15. MinimIze the dischage of pollutants from dewatering of trenches and excavated areas. These discharges are to be routed through appropriate BMP's (sediment basin, filter bag, etc.).

16. The following discharges from sites are prohibited: (1) Wastewater from washout of concrete, unless managed by an appropriate control: (2) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials; (3) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance; and (4) Soaps or solvents unsed in vehicle and equipment washing.

17. After construction activities begin, inspections must be conducted at a minimum of at least once every calendar week and must be conducted until final stabilization is reached on all areas of the construction site.

18. If existing BMP's need to be modified or if additional BMP's are necessary to comply with the requirements of this permit and/or SC's Water Quality Standards, implementation must be completed before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the SWPPP and alternative BMP's must be implemented as soon as reasonably possible.

19. A Pre-Construction conference must be held for each construction site with an approved On-Site SWPPP prior to the implementation of construction activities. For non-linear projects that disturb 10 acres or more this conference must be held on-site unless SCDHEC has approved otherwise.

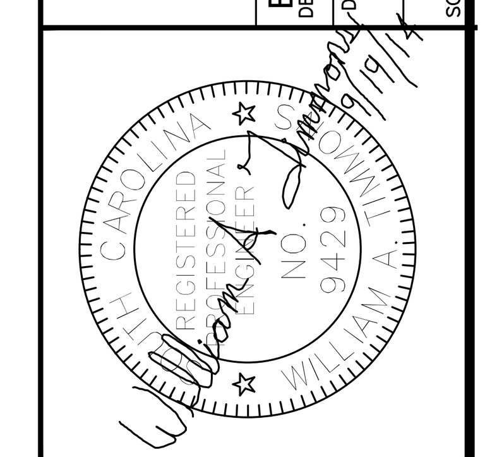
20. Provide sanitary facilities for workers on the site.

21. Redistribute sediment collected on site prior to grassing or dispose of in other approved method only.

EROSION CONTROL PLAN NOTES AND DETAILS

DESIGN	DRAWN	APPROVED	REV
BT / RB	BT		

DATE: SEP 19, 2014 | DWG NO.: ENG339-01
SCALE: AS SHOWN | SHEET 18 OF 19

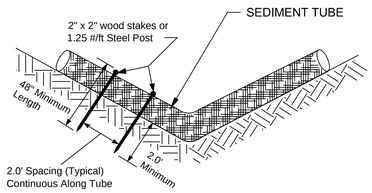


REVISIONS

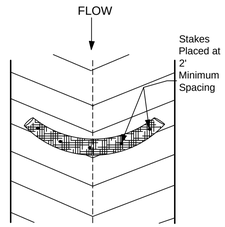
ZONE	REV	DESCRIPTION	DATE	APPROVED

Clarendon County Engineering
411 SUNSET DR. - MANNING, S.C. 29102
(803) 433-3256 FAX: (803) 435-2208

Clarendon County Water and Sewer Department
PHASE 1-C WATER MAINS



END VIEW OF DITCH



TOP VIEW
OF DITCH

SEDIMENT TUBE DETAILS
NOT TO SCALE

SEDIMENT TUBE NOTES:

Description
Sediment tubes are elongated tubes of compacted geotextiles, curled excelsior wood, natural coconut fiber or hardwood mulch. Straw, pine needle and leaf mulch-filled sediment tubes are not permitted under this specification.

When and Where to Use It:
Install sediment tubes along contours, in drainage conveyance swales, and around inlets to help reduce the effects of soil erosion by energy dissipation and retain sediment.

Materials
Sediment tubes for ditch checks and Type A Inlet Structure Filters shall be as follows:

Produced by a Manufacturer experienced in sediment tube manufacturing HanesGeo or equal, composed of compacted geotextiles, curled excelsior wood, natural coconut fibers, hardwood mulch or a mix of these materials enclosed by a flexible netting material. Straw, straw fiber, straw bales, pine needles and leaf mulch are not allowed under this specification. Utilizes outer netting that consists of seamless, high-density polyethylene photodegradable materials treated with ultraviolet stabilizers or a seamless, high-density polyethylene non-degradable materials. Diameter ranging from 18-inches to 24-inches. Curled excelsior wood, or natural coconut rolled erosion control products （RECPs） that are rolled up to create a sediment tube are not allowed under this specification.

Installation:
Install over bare soil, mulched areas or erosion control blankets. Be composed of geotextiles, curled excelsior wood, natural coconut fiber or hardwood mulch enclosed by a flexible netting material. Straw, straw fiber, straw bales, pine needles and leaf mulch are not allowed.

The minimum diameter should be 18 inches. Sediment tubes should be staked using wooden stakes （2-inch x 2-inch） or steel posts （standard "U" or "T" sections with a minimum weight of 1.25
pounds per foot） a minimum of 48-inches in length placed on 2-foot centers.

Stakes should be intertwined with the outer mesh on the downstream side and driven in the ground to a minimum depth of 1.5 feet leaving less than 1 foot of stake exposed above the sediment tube. Always refer to the Manufacturer's recommendations for the staking detail, Install all sediment tubes insuring that no gaps exist between the soil and the bottom of the sediment tube. The ends of adjacent sediment tubes should be lapped 6-inch to prevent flow and sediment from passing through the field joint.In no situations should sediment tubes be stacked on top of one another.

Construct a trench that is 20% of the tube diamater to intall the tube in. Avoid damage to sediment tubes while installing them. If the sediment tube becomes damaged during installation, a stake should be placed on both sides of the damaged area terminating the tube segment and a new tube segment should be installed.Should be installed in swales or drainage ditches perpendicular to the flow of water. Sediment tubes should continue up the side slopes a minimum of 1 foot above the design flow depth. Sediment tubes should be spaced according to the spacing table herein or as recommended by manufacturer.

Sediment tube length selected should minimize the number of sediment tubes needed to span the width of the drainage conveyance.
If the ditch check length (perpendicular to the water flow) is 15 feet, then one 15 foot sediment tube is preferred compared to two overlapping 10 foot sediment tubes.

Sediment tubes for ditch checks should remain in place until fully established vegetation and root systems have
completely developed and can survive on their own.

INSPECTION AND MAINTENANCE;

Check dams should be inspected every 7 calendar days and within 24-hours after each storm that produces ½-inches or more of rain to ensure continued effectiveness.

Large debris, trash, and leaves should be removed.

If erosion causes the edges to fall to a height equal to or below the height of the center, repairs should be made immediately.

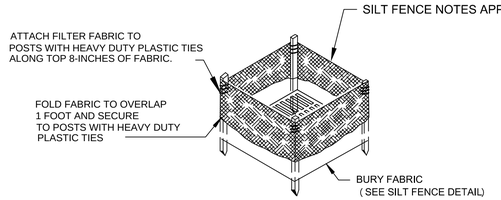
Remove accumulated sediment from the upstream side of the sediment tube when the sediment has reached a height of approximately one-third of the exposed height of the tube （measured at the center）.

Accumulated sediment should be removed prior to removing sediment tubes.

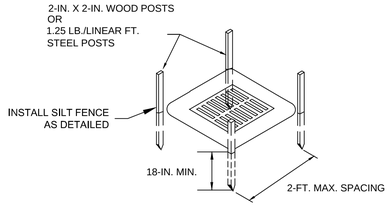
Sediment Tube removal should be completed only after the contributing drainage area has been completely stabilized. Permanent vegetation should replace areas from which gravel, stone, sediment tubes, or other materials have been removed

SEDIMENT TUBE SPACING

SLOPE	MAXIMUM SEDIMENT TUB SPACING
LESS THAN 2%	150-FEET
2%	100-FEET
3%	75-FEET
4%	50-FEET
5%	40-FEET
6%	30-FEET
GREATER THAN 6%	25-FEET

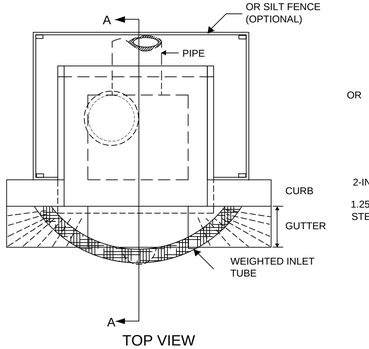


FILTER FABRIC INSTALLATION
DETAIL



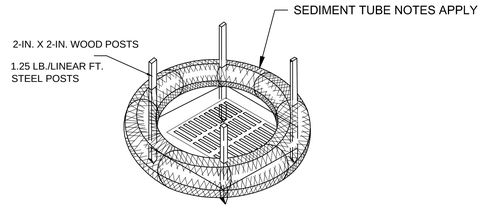
FABRIC POST INSTALLATION DETAIL

TYPE A FILTER FABRIC INLET PROTECTION
NOT TO SCALE

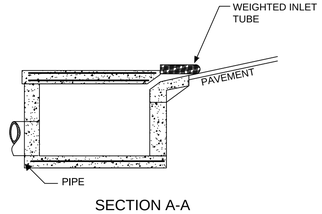


TOP VIEW

OR

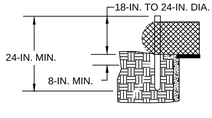


SEDIMENT TUBE INSTALLATION
DETAIL



SECTION A-A

INLET TUBES
NOT TO SCALE



SEDIMENT TUBE BURIAL DETAIL

TYPE A SEDIMENT TUBE INLET PROTECTION
NOT TO SCALE

EROSION CONTROL BLANKETS OR MATTING NOTES:

Temporary erosion control blankets or matting （ECB or ECM） are to be composed primarily of biologically photochemically or otherwise degradable constituents such as wheat straw, coconut fiber, or aged curled excelsior wood products with lifetimes of 1 to 3 years.

Class A Erosion Control Blankets （ECB） are for slope applications only sloping 2H:1V or flatter. Slopes greater than 2H:1V require Turf Reinforcement Matting （TRM）.

Class B ECBs are for channel applications. Channels and concentrated flow areas with design shear stresses greater than 1.75 lb/ft2 require use of TRM.

All class A and B temporary erosion control blankets consisting of straw, and or coconut must utilize non-organic, photodegradable or biodegradable polypropylene netting. Provide netting on both sides of the blanket. The top netting is to be degradable polypropylene with maximum mesh opening of 0.75" by 0.75". The bottom netting is to be degradable polypropylene with maximum mesh opening of 0.5" by 0.5". Sew a maximum of 2" on center.

All class A and B temporary erosion control blankets consisting of curled excelsior fibers must utilize non-organic, photodegradable or biodegradable polypropylene with 80% of fibers a minimum of 6" long. Provide netting on both sides of the blanket. The top and bottom netting is to be degradable polypropylene with maximum mesh opening of 1" by 1". Sew a maximum of 4" on center.

Blankets to be quality control tested by a GAI-LAP accredited laboratory with the following minimums:
6 oz/yd2 mass per unit area （ASTMD6475）; thickness of 0.25" （ASTM D6525）; initial grab tensile strength of .75 x .75 lb/ft2 （ASTM D6818）; roll width of 48"; For Class B channel applications minimum unvegetated shear stress of 1.0 lb/ft2 based on short-term peak flow duration of 0.5 hr.

INSTALLATION:

Grade and compact areas to be protected with ECBs as indicated on plans

Remove large rocks, soil clods, vegetation, and other sharp objects to allow intimate contact between ECB and subgrade.

Prepare seedbed and apply grass as indicated in grassing requirements.

Install ECB as recommended by ECB manufacturer.

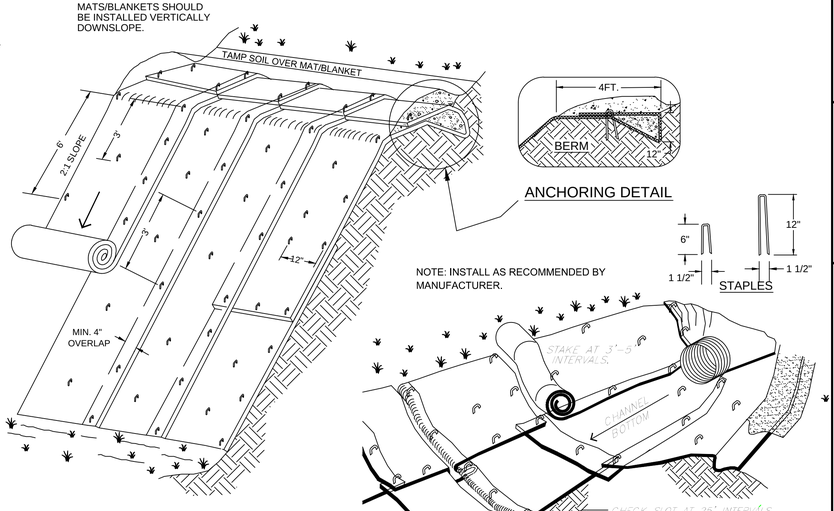
INSPECTION AND MAINTENANCE:

Inspect areas protected by ECBs for dislocation or failure every 7 calendar days and within 24 hours after each storm that produces 1/2" or more of rainfall.

Conduct regular inspections until grasses are firmly established.

Adhere to the pinning or stapling pattern recommeded by ECB manufacturer. Add additional pins or staples when required to secure blanket.

If washout or breakage occurs, repair all damaged areas immediately by restoring soil to its finished grade, reapply fertilizer and seed and replace the appropriate ECB material as needed.



SLOPE INSTALLATION

CHANNEL INSTALLATION

EROSION CONTROL MATTING TYPICAL INSTALLATION
NOT TO SCALE

EROSION CONTROL DETAILS

BT / RB	DESIGN
BT	DRAWN
SEP 19, 2014	DATE
APPROVED	
ENG339-01	DWG NO.
19	SHEET
19	OF
AS SHOWN	SCALE
	REV

REVISIONS

ZONE	REV	DESCRIPTION	DATE	APPROVED

Clarendon County Engineering
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Clarendon County
Water and Sewer Department
PHASE 1-C WATER MAINS